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ABSTRACT

This book presents 350 classroom-tested activities for use with children to create an environment that will stimulate young children's brains. Designed to be used by families, classroom teachers, family childcare providers, or others caring for young children, the book includes information on current brain research and describes interest areas in the child's surroundings. The book's introductory section presents information on brain development in young children and notes the importance of providing activities that stimulate the senses during the early years. Sections on emotional development, social development, physical development, and intellectual development describe the particular developmental domain and suggest activities to facilitate development in that domain. Some activities are meant to be used daily and others are designed to use occasionally. Topics discussed in the intellectual development section include how children learn to think, activities that build children's brains, stories and books, music and the brain, enrichment activities, fine arts, and multiple intelligences. Activities for several classroom areas are presented, including the block area, pretend play area, art area, and the discovery area. The book's final section discusses lessons to be learned from brain research, the importance of providing developmentally appropriate activities, the role of educational delivery systems, classroom atmosphere, problems affecting children, talking with parents, and using brain research results responsibly. (Contains 25 references.) (KB)

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ACTIVITIES THAT BUILD THE YOUNG CHILD'S BRAIN

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The Early Childhood Association of Florida makes every effort to ensure that this book reflects developmentally and culturally appropriate practices. It is hoped this book will advance the practice of early care and education leading to quality environments for young children. The views expressed or implied are those of the authors and not necessarily those of ECA of FL or its members.

About ECA of FL

The mission of the Early Childhood Association of Florida is to promote the quality of life, learning and care of young children through leadership, advocacy and professional development of its members in order to enhance their work on behalf of young children and families.

The Early Childhood Association of Florida, Inc. is the largest organization for early childhood professionals in the state of Florida. ECA of FL has members who serve in all levels of early childhood education, working directly with thousands of families with children birth to age eight as well as at the high school and college level, training teachers. There are 37 affiliates throughout the state. ECA of FL publishes an educational journal, *Children Our Concern*, twice a year. ECA of FL has a video lending library as well as an annual conference. For more information on the organization visit our Internet website at *www.ecaoffl.org*, write to the above address, call 941-951-0606 or fax 941-952-0116.

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Acknowledgments

I often joke that everything I know about children I learned from someone else. Over the years, I have read books and attended numerous conferences and workshops. Often I would go back to the classroom and try out the ideas and modify them to fit my teaching style. The activity became part of my repertoire and I made it my own. I changed the focus to meet the needs of the children I was teaching at the time. I owe a debt of gratitude to the many people who originated the ideas and gave me the flexibility to adapt them to use with the children in my classes.

I have been fortunate to have many mentors over the years. They are too numerous to list, but to each of you I say, "thank you," for giving me the strength, knowledge and courage to forge ahead and try new avenues. You helped me hone the attributes to be a leader and for this I am extremely grateful. You encouraged me to succeed on every level I tried and let me know that I could expand my horizons even more.

Thank you to the many people who aided me in completing this book. First, my husband Paul, who listened to me as I talked through ideas. I am grateful to my children and three grandchildren for letting me watch them grow and develop. This renewed my interest and wonder in this process called learning. I am indebted to the Board of Directors and Publications Committee of the Early Childhood Association of Florida, especially Sister Roberta Bailey, Amy Cordray, Janet Davies, Kay Halverson, Suzi Jamrog, Beverly Oglesby, Janice Sean, and Donna Shreve who gave me content suggestions, proofread the document and pointed out errors in organization and grammar. Thank you also to the staff members at Temple Emanu-El Early Learning Center in Sarasota, Florida and Dr. Bernard Maria, whose friendship and guidance I value. Finally, to my assistant Beth Moore, who not only did all the typing and layout, but helped me translate my ideas into coherent speech. All of you have made my vision a reality!

Suzanne Gellens

Introduction

"Neurons. Axons. Serotonin. Synapses. Dendrites. How do these have any application to my daily interactions with young children?" "How do I use the knowledge gained by the brain research to improve my teaching?" Many knowledgeable caregivers in the early care and education field are pondering these questions.

Definitely the recent brain research confirms much of what educators have been espousing for years: that the early years are the important years for learning.

- Every situation is a learning experience.
- Half of everything an adult knows is learned before the age of five.
- Children learn through interactions with the environment.
- Play is an essential component to learning.
- Hands-on activities result in lifelong learned skills.
- When a child has a choice in selecting activities, involvement is increased.
- All children's senses need to be stimulated in an enriched atmosphere.
- Activities presented to children should meet their stage of development and their interest level.
- Activities which develop the physical, social, emotional and intellectual aspects of each child are the most effective.
- There should be a balance between activity and rest; quiet learning and active learning.
- Children need a loving, stress-free environment for learning to occur.

This book was written to include information on the current brain research and offer multiple suggestions on what environment and activities are needed daily for a child's brain to grow to its full capacity. If you really use a developmentally appropriate curriculum and if you are a loving, nurturing person, you most likely are already meeting the child's needs. You will probably find that you will not have to change many aspects of the existing environment to bring the benefits of brain biology studies into your early care and education setting.

This book contains a description of interest areas in the child's surroundings with over 350 ideas to help you understand the application of brain knowledge in planning activities. Some of the recommendations describe one activity to use for a day or two. Some suggestions, such as a running description of what toddlers are doing, are meant to be practiced every day. Use this book as a reference guide. After writing your weekly lesson plans, assess if you have activities that engage all the senses and reach all areas of potential growth. Find the interest areas needing more focus and choose an activity that will enhance the child's learning while playing.

This book was designed to be used by families, classroom teachers, family child care home providers or any person who is caring for young children. The ideas have been collected as best practices over the years from educational colleagues, early childhood conferences, books and articles. All have been successfully used with young children. For those caregivers new to the field, it will give you a multitude of ideas to expand children's learning. For early childhood educators who have a great deal of experience, the book will reinforce what you already know and perhaps remind you of forgotten extensions. I hope you will apply the activities into children's environments.

It is an exciting prospect knowing the influence careful planning and execution of enriching activities have on the outcome of each child. Early care and education professionals and families do make a difference in the lives of children each and every day!

Terms Used in Brain Research Studies

Biology

Much of what we are currently reading about modern medical research that studies brain biology reinforces hypotheses that have been around for many years.

More than one hundred years ago Maria Montessori observed ***sensitive periods*** which is a concept currently being used in brain research discussions. Her observations of children showed that there are times young children are preoccupied in learning certain skills. For example, babies will practice standing from a sitting position over and over for days until they master this skill. Children will grasp tiny objects and put them into a container again and again until they have the motor knowledge to do the activity without purposeful thinking. These are tasks that help build and strengthen pathways in the brain.

Use it or lose it refers to the necessity of stimulating neurons in order for them to function. Environmental stimuli are important in the formation of brain connections. Fish born in a dark cave are blind. Their eyes are functional, but the connections to the brain are never formed. Insufficient stimulation results in loss of the ability of the brain cells to function. Children born with cataracts must have them removed before the age of eighteen months, otherwise they will have a permanent loss of vision.

Much of the new research refers to ***wiring of the brain***. Developing brain pathways has been compared to wiring a home for telephone services. The home is built; wires are run throughout the walls to each room. The connections are there, but without the wires being connected to the poles outside the home, there is no telephone service. This is similar to the state of a child's brain at birth. It is ready to learn and receive messages, but it must be connected or "wired" through stimulation in the environment. If the telephone lines are only run into one central receiving station, as in the early 1900's, phone service is limited and controlled by the operator. It was only when the phone lines were connected from city to city, then to continents, and now through satellites to the entire world, that the communication network was complete. Likewise, the child's brain builds internal connections in a network throughout its physical structure to bring about knowledge, language, memory, physical movements and other critical functions.

Another conceptual way to look at brain development is to visualize how a ball field could be created. When a child first is offered a ball as an emerging toddler, he tentatively pushes it at random. With practice, he can roll it between himself and another person. If that child rolled the ball outdoors, after five minutes or so of the ball going back and forth, the grass would be bent. If the child repeated the rolling exercise over and over, day after day, for a year in the same area, the grass would begin to disappear and a little path would be created. As the child grows and begins kicking the ball as well as rolling it, the ball would go back and forth on that little path, wearing away at the ground until all the grass had gradually disappeared and only dirt was there. The child begins to kick and run with the ball, bounce the ball, catch the ball, use a hockey stick to slam the ball, hit a baseball and run bases, throw and dribble a basketball and continue to play different of types of ball in the same area. Over time, the path disappears and the area widens and thickens and becomes barren of grass. The creation of this "playing field" is much like the connections made in a child's brain. Through continuous stimulation to the same area of the brain from repetition and reinforcement, the tentative connections strengthen and become more permanent. Now, if the child moved away and never played in that once grassy area, soon the area would meet the encroachment of weeds and grass and eventually would be hard to find. This also happens to the brain. Without the repeated stimulation, some connections weaken or disappear. If however, the child, as he grows and matures, continues playing ball in that area, the parents may put down asphalt and create a more permanent area for play. They might add a basketball hoop, paint lines for bases, add a tether ball or a football or hockey goal. Even when the child moves away, the area remains viable. When tasks that are mastered are repeated frequently, the wiring in the brain in an area becomes strengthened. Eventually the connections become durable and will be a part of the adult's brain functioning.

Windows of opportunity is another phase currently used. Piaget, Freud, and Erikson observed times when children were able to learn tasks easily and quickly and called them *stages*. Scientific research has confirmed that these are periods of time in a child's development when the child's brain is the most capable of learning certain skills. The "wiring" of the brain takes place rapidly as the stimulation the child is receiving promotes the growing of fibers between nerve cells in the brain.

Windows of opportunity vary from child to child. The brain is very plastic in young children. Although there are opportune times for skills to be developed, there are circumstances when children make phenomenal strides after the so-called "window" has closed. Exposure to a rich environment and a nurturing atmosphere with proper intervention can make a difference in how the brain develops. However, the learning will be more difficult and may take longer to master.

Brain biology and ***neurobiology*** are terms being used to label the current research being conducted to unlock the secrets of brain function. There are over 50 ***neurotransmitters*** or chemicals secreted by the brain that affects the formation and function of the ***neurons*** or brain cells. ***Serotonin, cortisol*** and ***melatonin*** are just the names of a few of these chemicals. The brain's physical structure consists of two halves or ***hemispheres***. Optimum experiences excite the cells in both hemispheres and help them work in concert. Each side has regions that control specific functions such as breathing, crying, language acquisition, speaking and, in fact, everything we do. The following articles will explain how the brain is wired and organized.

Brain Development in Young Children

by Nancy Fraser Williams

Modern medical technology has made it possible to use new imaging devices to scan the human body and "see" what is going on deep inside areas such as the human brain. Neuroscientists have used that ability to actually see how the brain works, to watch how and where the brain processes a series of events and to learn much more about what goes on inside the human brain than has ever previously been known. New discoveries and reports are being made regularly that provide new information about how a child's brain develops. Researchers are telling us that there is now medical and biological evidence for what many of us who work with young children have believed all along – that the early years are crucially important. A child's environment and positive or negative experiences during the preschool years can affect that child's brain development and have consequences that last a lifetime.

Research is showing that a baby's brain develops at an astonishing pace. The rapid growth begins before birth, when during some stages of prenatal development the brain adds an incredible 250,000 cells per minute. But even with that astonishing rate of growth, brain development is not complete at birth. Brain cells, including neurons, are there in abundance. We humans are born with over 100 billion brain cells, more than we will ever need. However, at birth most of the crucially important brain connections between the neurons have not yet been formed. As the young child grows and develops during those very important early years, the brain continues to grow, to mature, and to develop connections between the neurons.

A type of wiring system develops as the axon (transmitter) from one neuron grows to form a connection with the growing dendrites (receivers) of other neurons. The junction point between the axon and the dendrite is called a synapse. This "wiring" becomes covered with a substance called myelin which acts as insulation and aids in the sending of electrochemical messages between the neurons. During a child's earliest years brain development continues and such a dense tangle of this "wiring" develops that a child's brain almost triples in weight between birth and age three – from 370 grams to 1080 grams.

According to Pasco Rakic, M.D. professor of neuroscience at Yale University, heredity determines the number of neurons and the way they are arranged in the brain. Thus, the basic characteristics of the brain, including special aptitudes such as those for math or music, are inherited from parents in the same way that the shape of the nose is also inherited from one's parents. Environment, especially during a child's early years, also plays a major role. Without exposure to proper experiences and training at the proper time, these special aptitudes and capabilities may remain undeveloped.

A stimulating learning environment enhances the development of brain connections. Studies by Dr. Greenough have shown that young rats that interact with other rats and with play equipment produce more and stronger synapses than those raised in cages without such stimulation. With humans also, early experiences can result in an increase or decrease of as much as 25 percent in the final number of synapses in the brain. Babies need an appropriately stimulating environment. However, experts warn that parents or teachers should not "push" young children. Electrochemical brain messages move much more efficiently as the new wiring system in the brain becomes coated with myelin. The major milestones of the first years including smiling, babbling, talking, crawling, walking, and fine motor coordination in the fingers, all follow the pattern of brain myelinization. Parents or caregivers who try to push children through the stages of development are pressuring children to do what their immature brain cells are not yet ready to do. Maturation plays a major role in children's development.

Important research on the effects of early prolonged stress on the developing brain is being conducted by Bruce Perry, M.D. of Baylor College of Medicine. A child raised in a stressful, unpredictable violent environment will develop a brain that is specifically adapted for a violent, hostile world. Adaptations include over development of brainstem and midbrain functions such as anxiety, impulsivity, and fight or flight reactions. Limbic and cortical functions such as empathy and problem-solving skills will tend to be less developed. Research done by Dr. Gunnar and others indicates that physical or emotional trauma causes an increase in a stress hormone called cortisol which is linked to a negative effect on learning and development.

These studies indicate that physical and emotional trauma during the toddler and preschool years can actually change the physiological development of children's brains, resulting in learning problems and difficulty in controlling emotions. Intervention can help these children, but prevention is a better solution. Harry Chugani, M.D., a neuroscientist at Wayne State University has used imaging technology to research brain activity in young children. His research shows that new synapses are continuously being formed while other connections are eliminated. Synapses form rapidly in infants, going from 50 trillion at birth to 1000 trillion in the first year. Chugani's work puts the key years for

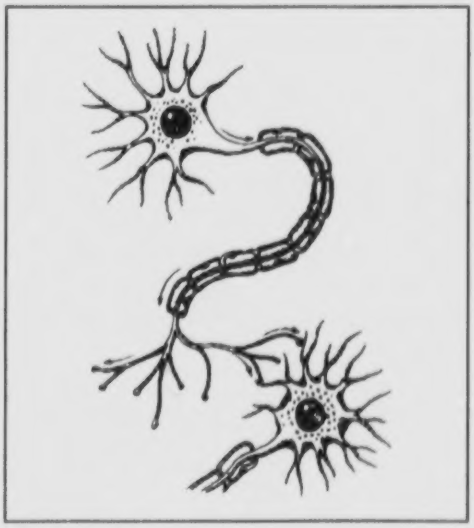

Illustration from Routh 1997 and Sylwester 1995 brain development at age 0-10. After that the number of synapses begins to fall to about 500 trillion at age 20. Synapses that are not used are "pruned" or die off at a rate that increases at puberty. According to Dr. Chugani, it is much like a road system. Dirt paths are easily formed in the early years. Those that get the most use are widened and paved. At puberty those "dirt paths" that are not used begin to grow over and are eliminated. This does not mean that people cannot learn later on in life. Learning continues at all ages, but some flexibility is lost. Paved roads can continue to be widened into vast superhighways, but some of the ability to create new roads is lost. We now know that languages are best learned in childhood and that because brain connections do not form, vision and hearing losses may be permanent if not corrected early.

Windows of opportunity for learning open as the brain develops, but windows of opportunity do also close. The recent research on brain development has profound implications for how we raise and educate our children. The research shows that a child's early years are crucially important.

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The Child's Brain: A Work in Progress

by Bernard L. Maria, MD, MBA and Barbara E. Maria

In 1989, President George Bush and the United States Congress officially declared the 1990s as the "Decade of the Brain." In the last ten years, more has been learned about the brain than in all of human history. Advances in our understanding about brain function are relevant to early childhood educators who are well positioned to help children develop their brains in the first few critical years of life.

One of the most important discoveries in recent years is that kindergarten is not the starting point of a child's brain development. At times during brain development before birth, 250,000 nerve cells (neurons) are added every minute. A parent should be encouraged to begin thinking about brain development even before their child is born. Poor nutrition, drug use, cigarette smoke, and alcohol are just a few factors that affect brain development before birth.

At birth, the brain has all the neurons (approximately ten billion) it will get. However, the human brain triples in size during the first few years of childhood; by age three years old, the brain is about 80% of the adult size. So one immediate question comes to mind: if the brain has all its neurons at birth, why does it grow so much up until kindergarten? There are two critical processes in brain development that account for much of the brain growth that is most important to early educators: the rapid increase in connections between neurons which are called synapses and the proliferation of glial cells.

Wiring the Brain

A neuron can send up to 1000 electrical impulses per second and form from 1,000 to 10,000 synapses with neighboring neurons. This wiring of the brain and formation of synapses is fundamental to developing vision, math, logic, emotional stability, language and speech. From a handful of "electric highways" at birth, about 1000 trillion synapses have formed by age three years old. Most important, the electrical activity of the brain changes its physical structure to drive the explosive learning observed in the early years. For example, research has shown that the synapses that form for short term memories are transient whereas the synapses that form to create long term memories are permanent. The more the senses are associated with a given memory, the stronger the synapses and the stronger the memory. If a child is asked to remember that an animal seen on a farm is a horse (Figure 1) and the educator provides sound, touch, and smell, then more synapses will form within the temporal lobe (sound), parietal association cortex (touch), occipital visual cortex (vision), and frontal lobe (smell). If the teacher makes the experience particularly pleasant, synapses will also form within the limbic system. This is why the simple mention of a horse in later life may trigger fond memories of an early childhood educator or of a farm on a beautiful day. The early childhood educator is entrusted with the formation of synapses and with the biologic foundation for learning. The world around a child greatly influences brain development and function.

The Role of Glia

There are approximately 100 glial cells in the brain for every neuron. However, glia have not received as much scientific respect as their neuronal counterparts. This is why I call glia the "Rodney Dangerfield cells of the nervous system." The word glia comes from the Greek word for glue. In the early years of brain research, glia did not receive much attention as they were viewed as the "glue" that kept neurons together. However, it is now clear that glia account for most of the brain growth in the first few years after birth and that they play key roles in maintaining a balance in chemicals in the brain which foster communication between neurons. For example, if it were not for glia, proteins in food would readily enter the brain and disrupt the chemistry of synapses so important to learning.

While much attention has been placed on the effects of early education on the formation of synapses, it seems likely that environmental stimulation also mediates glial function. Glia communicate with each other and with neurons. For example, it is well known that head injury and physical abuse produce glial scars which interfere with neuronal efforts to repair the brain. When a glial scar is present, synapses cannot form in that region of the brain because glia no longer secrete growth factors that neurons require. When an infant is shaken, a particular type of glial cell, the oligodendroglial cell, is damaged and no longer produces myelin to insulate neurons and speed up electrical conduction between neurons. When glial scars are present in the temporal lobes which are so vulnerable to trauma, children have memory loss, short attention span, and easy distractibility. On the other hand, rich experiences in the first three years of life including touching, holding, rocking, talking, listening and reading, or just playing probably account for a 20 to 30 percent difference in the number of glial cells, the number of synapses, and thus, brain size and function (Figure 2).

Figure 1

Neuroanatomy 101

The brain is divided into two cerebral hemispheres (thinking brain), two cerebellar hemispheres (coordinated movements), and the brainstem (basic functions). The brain uses 20% of all oxygen consumed by the body. The thinking brain consists of the frontal, temporal, parietal, and occipital lobes, in addition to the diencephalon. Cerebral dominance is usually not apparent in children until their first birthday. The child begins to exhibit dominance when they develop hand preference. In fact, the early preference of use of one hand over the other may indicate subtle weakness on one side. In 95% of right-handers, the left side of the brain is dominant for language. Even in 60-70% of left-handers, the left cerebral hemisphere is used for language. The right and left cerebral hemispheres develop specialized functions. For example, the left hemisphere is dominant for language, math, and logic. The right hemisphere is dominant for special abilities, face recognition, visual imagery, emotion, and music. The two cerebral hemispheres may have specialized functions but they work together in concert. If a child sees a toy out of the corner of the eye on the left, the image travels first from the eyes to the right occipital lobe at the back of the brain. The child recognizes the toy but can name it only after the visual information has traveled from the right brain to the left brain through 200-250 million fibers called the corpus callosum.

The more we learn about the child's brain, the stronger the evidence that early rich experiences are key to the development of emotion, senses, intelligence, language and memory. Major changes in family life since the Industrial Revolution have made child care and early childhood educators integral partners with parents in the child-rearing process. A stimulating early learning environment plays a huge role in how the brain wires itself and how it functions later in life. This has a major impact on children's emotional development and learning skills.

Figure 2

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The Importance of the Early Years

Human development depends upon both the genetic make up of a child (nature) as well as the environment in which the child lives (nurture). Nutrition, stimulation of their senses and the quality of care directly affects children's physical growth, the ability to learn and their emotional make up. Every occurrence in a child's life is an educational experience. Every moment directly influences how a child's brain is "wired." Most of the important neural pathways for motor skills, vision, social development, language and emotional control are formed during the first three years of life. When a child does not have proper stimulation or is in negative situations, grave, long-term effects pose a risk to brain development.

Good early care and education improves the chances that children will grow up to reach their full potential. Therefore, every early care and education program must appeal to the child's senses.

Senses

- Hearing
- Seeing
- Touching
- Tasting
- Smelling
- Kinesthetic (movement and balance)

Daily, the caregiver should plan so that all children have activities that stimulate every sense. Babies have a heightened sense of smell and taste. Even though they identify people with sight and sound, smell plays an important role. They also use taste to learn about their world. Activities for an older child often limits sensory input to seeing and hearing. Yet only through the interplay of all senses can a child learn to the fullest (Shore 1997). When children play their entire body is involved. They see the doll; hear it cry "Mama"; they feel the difference between the smooth skin and the rough hair; they smell the plastic of the skin and the distinct smell of clothes. Their arms feel the

weight of the doll as it is picked up. A very young child would mouth the doll, tasting the skin and hair. Since older children do not put most toys in their mouth, adults must ensure that there are activities that stimulate the taste buds daily. Smell is not as sensitive in children after the age of two. The environment should include a fresh flower to smell, an activity with identifying spices or other tasks that stimulate the olfactory nerves.

The personality of the growing child is determined in the first few years. Development is uneven in young children. Their brains are very plastic. Lack of growth from adverse situations can sometimes be reversed; however, emotional make up and social interaction are determined at a very young age. The environment should include attributes that will make children grow up trusting that their needs will be met by the world. A child learns early how to interact with people in a socially acceptable way. The surroundings and climate in the environment and the child's reactions in that atmosphere are permanently imbedded in the brain and determines how the brain grows. How children's needs are met affect behavior.

Behavior
- Emotional
- Social
- Physical
- Intellectual

Activities that Stimulate the Senses

Hearing
- Use words and simple sentences connected to what infants and toddlers are doing. Sing-song and higher voice pitch helps babies learn.
- Echo infants' and toddlers' verbalizations back to them. Repeat babbles and sounds to help babies learn.
- Describe activities to older children. Use tone and pitch to express feelings.
- Make music an integral part of every day. Connect words to the music in order to boost language acquisition.
- Give simple directions that are age appropriate to help children learn to listen. Always keep the activity positive and fun.
- Avoid a noisy atmosphere for prolonged periods. Children react with out of control behavior to loud noise.
- Provide quiet periods as well as times with purposeful listening activities. Quiet can be very relaxing.
- Spark interest with toys that make sounds such as balls, cars and trains. Help the children mimic the sounds. Point out environmental sounds.
- Listen to children. This models how to listen.
- Play taped stories and music to hone in on listening skills.

Seeing

- Describe what children see. Keep to real objects; avoid using pictures only. Simple one or two words are sufficient for a baby. As children grow older, the description becomes more complex.
- Point out colors and shapes in the surrounding environment. Help children see the variety that can be "blue," "hat" or "dog."
- Keep a pleasant, animated face to give children a feeling of security.
- Provide a medley of colorful posters or pictures placed at eye level to entice and delight children. Talk about what they see.
- Give children a vocabulary linked to what they are visualizing.
- Read books and other printed material as early as 3 months. The more children see print in a meaningful situation, the more they are prepared for reading. Make it a time for cuddling and lap sitting.
- Vary repeated activities by adding visual surprises. Use a magnifying glass to examine a flower or shell. Place colored cellophane over the fish tank. Hide colored rocks in the sand table. Add food coloring to water, glue or shaving cream. Put a drop of food coloring inside a homemade play dough ball. The color appears as the child kneads the ball.
- Teach children how to recognize body language. Examine faces, arm gestures and stances. Connect feelings to the movements.

Touching

- Touch young babies and toddlers often. Allow them to explore you by touching your face and hands. As children grow, continue to touch and hold them appropriately. Describe the feel of skin to the child.
- Add varied textures into the environment. Smooth and rough materials; hard and soft toys teach concepts as the children play with them. Connect words to the surfaces they feel. Add more descriptive words as children get older.
- Guide very young children's hands to feel as you talk about objects. Rubbing soft blankets on cheeks and arms is beneficial. Play games around textures.
- Teach young children to hold and cradle dolls and stuffed animals. These skills will translate later on into parenting skills.
- Hug and cuddle children to teach them to hug and reach out to other children and adults. This social skill is taught through imitation.
- Put warm finger paint and ice in the water table. Play with mixtures like cornstarch dissolved in water to excite the touch mode.
- Place shaving cream, sand, potting soil and water in individual containers. Help children walk through the maze barefooted.

Tasting

- Describe and comment on the taste as children begin eating a variety of foods.
- Keep objects clean as babies put everything into their mouths. They explore surfaces and learn textures through taste.
- Create times during the day (snack and meals) to discuss and compare the taste of foods. This helps make the connections in the brain so children eventually know "the taste" of a food from seeing it. It is okay to dislike some foods.
- Encourage children to experience and taste a variety of foods from different cultures.
- Cook with young children which is not only fun, but provides opportunities to distinguish the taste of a raw carrot from a cooked carrot. Children enjoy eating foods they prepare.
- Include salty (pretzels), sweet (fruit), sour (pickle) and an occasional bitter food (radish) for children to experience. Keep the activity fun. Never force children to taste new foods.

Smelling

- Know that babies and toddlers rely on the smell of people and articles such as blankets and stuffed animals for comfort and identification.
- Make young children aware of odors in their immediate surroundings. Link odors with descriptive words to help them learn smells. Identify the smell of rain and finger paint to add excitement to young children.
- Identify the aroma of different foods as they are cooked and eaten to create a knowledge of smells. Smell and taste are closely related.
- Teach children the smell of books as you read or the smell of dirt as you plant which helps them cement the object into memory.
- Add activities to the curriculum to foster olfactory knowledge. Include scented powder in the baby prop box, add spices to a collage, add peppermint extract in the water table and use scented hand cream after washing hands.

Kinesthetic

The sensation of position, movement and balance

- Rock babies and toddlers as you hold them. It is very comforting and soothing for upset children.
- Know that children find pleasure in moving their bodies, first as they rock on their knees, then as they crawl and finally as they walk and run.
- Put movement together with music. Add a rhythmical beat to the action. Swaying, hand motions and creative movement are stimulating many parts of the brain simultaneously. These are both fun and productive activities.
- Include opportunities that promote balance such as putting on dress-up clothes and walking on a painted line.
- Provide opportunities to swing, walk on a balance beam and slide to help children develop bodily control.

Emotional Development

During the early years, emotional development is extremely influential on brain development. The quality of the nurturing and loving is an important component that determines not only how the brain is wired, but also how the brain grows physically. Warm interactions and feelings of trust and safety are necessary for the child to reach optimum growth and development. Children only can thrive in a loving, accepting environment.

Optimum Atmosphere

- Hold infants and toddlers often. Rock young children and hum to them when they are upset to help calm them.
- Respond quickly to babies' cries to let them know they can depend upon the adult who is caring for them.
- Hug very young children often. Massage their backs and limbs as you talk to them in a soothing voice.

The first eighteen months are crucial to emotional development. It is necessary for an infant and toddler to make an attachment or bond with both family members and the primary caregiver in a child care setting. This promotes good mental health and enables the child to feel safe. When the relationship is consistent and meets the child's needs, the brain uses neural pathways to generate chemicals that promote normal growth. During periods of contentment, the chemicals open the brain pathways that help learning to take place. However, in a loud chaotic atmosphere or a neglectful environment, the child adapts by developing a highly reactive arousal system. The midbrain grows disproportionately large as the child's brain attempts to cope. The child, whose primary relationships are characterized by violence, neglect, unreliability and high noise levels has a brain that grows differently. The brain is permanently left with smaller areas for learning (Routh 1997). The child is likely to be combative, lack impulse control and can be withdrawn as environmental cues are misinterpreted. This adaptive reaction to traumatic stress in the early years produces violent adults (Karr-Morse & Wiley 1997).

As children get older, their emotional needs still remain primary. The environment must be accepting, loving and stress free for the child's brain to continue to grow optimally. When a child is emotionally secure, the brain is open for learning. The chemicals emitted when the child is happy actually allow for cognitive development to occur. Memories are connected to emotions. Children remember ideas associated with feelings.

Memories

- When children smell cookies, they remember the wonderful fun they had baking cookies with an adult.
- When a rainbow is seen, children might remember laughing as they ran through a sprinkler.
- When they see an angry face, children remember a yelling adult.

Often when children are forced into academics such as writing their name or pressured to read before they are developmentally ready, stress chemicals are released in the brain. Children may be unable to learn (Routh 1997). They physically may react to the tension created. This can be harmful. Besides setting up feelings of inadequacy and apprehension, the child can develop a negative attitude about learning that may continue for many years.

Optimum Emotional Environment

- Give lots of individual attention to all children, especially infants and toddlers.
- Hug infants and toddlers often. Touch helps all young children to develop physically and cognitively.
- Keep noise levels low; provide small groups and quiet voices.
- Allow children to have a comfort blanket, doll or object.
- Provide a consistent, responsive caregiver at all times.

Activities that Promote Emotional Well-being

Besides intervening in the child's environment to help children feel secure throughout the day, adults can add activities that promote emotional control. Children's emotions have to be accepted as real and adults need to act in a timely manner. When a child cries, adults should respond. When a child is upset or scared, instead of trying to talk the child out of the emotion, adults need to validate the feelings and help the child move on. Unless children feel love, safety and respect, they cannot thrive. Learning can only take place after children's anxiety is relieved. Adults not only should soothe children, but also teach them to take charge of their own emotions (Karr-Morse & Wiley 1997).

Activities for Infants and Toddlers

- Sit young children on your lap, facing you. Talk to them about their body parts. Play pat-a-cake and other interactive baby games. Read books while making physical contact.
- Keep a pleasant face near the child during diapering. Talk in a soothing voice describing what you are doing. Blow bubbles on their tummy, sing nursery rhymes, and wiggle fingers and toes in a playful manner to convey you like the child.
- Give upset infants a warm bath to help calm them. Toddlers can play in a water table or sink. Not only does the activity distract them, but the water is soothing.

Validate the child's feelings. "That fall really hurt your leg. I know you want your Mommy. Come sit on my lap and I will rub it to make it feel better." "Daddy had to leave and that makes you feel very sad." "The dark can be scary. I will hold your hand."

Activities for Children 3-5

When the child is upset:

- Provide art materials and suggest the child draw, paint or pound clay to help alleviate upset feelings. Use the words "sad," "angry" and "upset" to give the child a vocabulary to express emotions.
- Have the child dictate to you the reason for their emotional outburst. Write it down word for word without editing and read it back to the child. Suggest they draw a picture of how they feel (scribbles are acceptable). Encourage the child to take the note home or post it.
- Sit on a rocking chair or pillow and hug the child as you talk in a low voice. Find a book that will match the emotions the child is expressing. You may want to keep special books that show characters struggling with similar problems within easy reach.
- Provide water play to calm children.

Throughout our entire lives, people feel a variety of emotions. Children can learn that it is normal and natural to have these emotions. They can master the words to communicate their feelings to those in their environment. Providing a format to discuss these feelings at a time when they are not upset can be advantageous.

Create Teachable Moments

- Let children use a "thumbs up" for things they like and a "thumbs down" for items they dislike. Show pictures of foods, toys and animals. Compare likes and dislikes; "Janie and Louis like celery, but Tony won't eat celery."
- Read a book or describe an incident that demonstrates joy, distress or adversity. Use feeling words to describe the emotions the character feels. Stop the story before the conclusion and listen to children's solutions.
- Discuss a topic that is upsetting to some children. "How do you feel when another child says they hate you?" Reflect their emotions. "It makes you very angry when Darcy says she hates you!" Compare different children's feelings, "Angela gets angry, but it makes Antonio sad when a friend tells him he hates him." Adults cannot be judgmental, but accurately mirror the children's feelings.

Fostering Resilient Children

Adults can foster skills that help children cope when faced with adversity in life. The attributes that give children resilience stem from an environment that teaches children they are competent. Children who persist in negative situations possess certain traits that allow them to thrive. Parents and caregivers should help very young children learn how to manage difficult situations (Benard 1995).

Children need to have emotional strength and understand emotions inherent in situations. Teaching children to identify how and what they feel as well as the emotions other people are experiencing is important. Children then can begin to control their own emotions. Activities can be added to promote the understanding of feelings.

Activities That Teach Emotions

- Model emotional control and empathy toward others.
- Play games that promote an understanding of body language such as acting out feelings of separation, anger or joy.
- Look at pictures that depict emotions. Help children make up a story of what might have happened to cause the distress or happiness.
- Read books about characters engaged in struggles to enhance the identification of feelings. *The Little Red Hen, Stone Soup* or Aesop's Fables depict success in spite of problems.

Building confidence that children can solve problems helps teach resiliency. Validating children's own ideas and then trying out their hypotheses lets them see they are resourceful. Here is where children can apply their critical thinking skills.

Problem-Solving Activities

- Discuss daily problems such as dividing five cookies among seven children, fixing a broken toy or having a planned walk interrupted by a rainstorm.
- Ask children what can be done to solve the problem after it has been identified. Encourage children to use their own resources to manage the situation, even if, as an adult, you recognize that the solution may be different.
- Encourage children to seek help when needed on difficult problems. Then you can offer suggestions while complimenting the child for trying to solve the problem on their own first.

Many children and adults who have learned to face adversity have an independence that allows them to forge ahead in difficult times. Allowing two-year-olds to say "No!" and giving children choices in many situations allow autonomy to develop.

Resilient people often have an interest or hobby that is a source of pride (Benard 1995). Encourage children to collect rocks, leaves and seashells. Display the collection for others to see. Don't be surprised if the interest only lasts a few days. Group contributions, where several children collect items, add a social dimension that also contributes to resiliency.

The bond between a child and one or more adults in the environment not only helps a child feel secure, safe and loved, but also gives a child an inner strength to combat adversity. A meaningful, caring relationship that the child can depend on no matter what the circumstance provides support for healthy development. Families and caregivers are the model for personal identification. Children work harder for people they love and trust.

Emotional Support Activities

- Create moments when you convey delight in each child.
- Give hugs and pats on the back often during the day.
- Use words that let the child know you care about and are interested in their thoughts and feelings.

Children who are emotionally secure and thrive socially gain the skills that will help them be resilient for life. They are motivated to learn even when their surroundings are not the most conducive. What a wonderful strength this will be in times of adversity!

When adults establish high expectations for children, they feel the support necessary to achieve (Benard 1997). Working as a team on projects where children plan, execute with an adult's help and review the outcome, impresses upon children their own capabilities. When children have meaningful involvement in an activity and a knowledge of their contribution for its completion, they build confidence.

Cooperative Activities

- Build and paint a robot or spaceman from boxes and junk.
- Plan, build and run a small carnival for young children. Have only a few booths that the children can participate in creating and operating. A bean bag throw, a fishing game with magnetic fish and a help-yourself snack are sufficient. Let children clean up to conclude the sequence. Write an experience chart about the project.
- Dig, plant and care for a vegetable or flower garden.

Television and Violence

Some television programs geared for young children, such as "Sesame Street," "Barney" or "Mister Roger's Neighborhood," focus on important emotional and social issues such as getting along with other people or the fear of failure. These are meant to be teaching tools to help children cope in their world. Watching with children and helping them discuss issues may be of value. Watching television is a passive activity and small children need direct experience. It is questionable if this activity is truly beneficial.

Many children view programs that show people and cartoon characters involved in karate, fist fights and other acts of aggression. These television programs can be emotionally unsettling to young children. Proponents argue that the "good guy" perseveres and there is a moral at the end of each episode. Children only see the physical action. Because children model behavior they see, they imitate the hero's hitting and kicking. The message learned is that physical force and aggressive acts are not only acceptable, but necessary to win. Adults in the child's world should eliminate this television viewing. It does not meet the child's needs in any way and often escalates inappropriate behavior.

Fears arise when children view news programs showing gunshot victims, earthquakes and floods. These incomprehensible occurrences are difficult for adults to understand, much less young children. Adult reality shows focusing on war, police and hospital settings present a view of the world that young children cannot understand. They are just beginning to process information about death and tragedy. They might begin to worry that what is seen on television will happen to them. This apprehension and feelings of lack of control over such situations trigger a chemical release in the brain that helps the child remain vigilant so disaster won't strike. These chemicals interfere with the process of learning (Karr-Morse & Wiley 1997). Sometimes the child's fears affect sleeping and eating. The best solution is removing this kind of television viewing from the child's environment for emotional security.

Social Development

The early years are when children learn how to get along with other people in a socially acceptable way. Young children are egocentric. They want their own way and want the objects that surround them. Learning how to delay gratification and share the environment with others does not come naturally. What does come naturally is a drive to be with others. Humans derive pleasure from interaction with people. Children need to learn to trust those who care for them by having their basic needs met. Infants need to be fed when hungry, kept warm and dry and nurtured to make them feel safe. Caregivers should be responsive to babies' cries, which is their form of communication. When adults respond to babies' cries in a pleasant, soothing voice, they feel comfortable that their needs will be met. (Sprinthall & Sprinthall 1981).

Focus on teaching pro-social skills. Children who don't learn how to get along with others in the first few years may have problems their entire lives. Young children, who have activities that promote social skills and learn how to solve problems with others, will more likely go on to be productive, social adults. We can find the teachable moment or create activities that promote skills to solve problems peaceably.

A child who does not know how to keep from touching other people's property or is aggressive in the early years, is at risk for having social problems throughout life. Often there is a snowball effect. The child is disliked for not having the skills to get along with other people. Because of being excluded, the child then escalates the undesirable behavior to get attention. Adults have a responsibility to intervene to help the child learn socially acceptable ways in the early years.

Cooperation is taught from an early age in the Japanese culture. Children are taught how to work in small groups. Expectations are that children will learn how to get along with others cooperatively. Team building is a way of life. Conversely, the American way is to keep hands to yourself, find your own space (an area around each person that belongs to them alone) and a measure of competition. These often lead to the lack of consideration for other people. Therefore, we have to teach social skills in many different ways to children.

Infants

- React to babies quickly with patience and understanding. Use diapering and feeding times to talk to babies face to face. Touch is important to help form bonds. Massage is both soothing and helps solidify bonding.
- Hold and talk to infants often. Hold infants on your lap as you read picture books. Hold infants tightly to your body as you carry them.
- Teach socialization through rhymes, fingerplays and songs. Play games like "Peek-a-boo," "This Little Piggy Went to Market" and "Pat-a-cake" with a large smile close to baby's face.
- Allow babies to explore your face, naming the parts that are being touched. In turn, touch and name the baby's body parts.
- Help babies make contact with others. Groups of infants should be small for quiet, enjoyable interaction. Keep contact with adults casual and stress free. The first time with an unknown adult, stay with the infant. Help the child develop trust in the relationship.

Toddlers

- Hold toddlers and explain their surroundings. Patience is an important component in dealing with emerging personalities. Toddlers need lots of one-on-one time.
- Help toddlers play with one other child, making sure there is sufficient equipment to allow each child to have the same toy if desired. Encourage interaction with the other child as they learn swapping and sharing skills. Praise young children for giving toys to others.
- Create surroundings so toddlers can make choices and feel the power of being in control. Avoid power struggles with toddlers. All toddlers say "No!" sometimes even when they mean "Yes." Toddlers need to feel independent.
- Model social skills. Praise toddlers when they cooperate with you. "I like the way you picked up the doll." "Thank you for holding Craig's hand."
- Hold toddlers on your lap as you read books. Hug them and talk to them as they sit. Rub their backs at nap time. Close human contact is important.

Children 3-5

Teach cooperative skills by creating situations that allow children to work together. We can use Piaget's theory that activity equals learning. Look for times during the day to promote social skills. Most group care assigns the children helpful jobs in the room to teach responsibility. Try to use this time to also teach group skills. Instead of one job for each child, think of things two children can do together.

- Two children clean the tables: one squirts water, one dries with a paper towel.
- Two children work together on puzzles, manipulative toys or at the computer.
- Children carry wastebaskets, watering cans or heavy pails of supplies together.
- Two children paint together at the easel using the same paper. Murals allow more children to interact together to create one product.
- Clean-up time provides another golden opportunity to promote working as a team.
  - Assign one child to pick up the dolls and a second to wrap them in blankets and put them in the bed.
  - Set up an assembly line to put away blocks. Line up the children and have one pick up the block and pass it down the line to the last child who puts it into the block storage cabinet.
  - Let several children work together to complete puzzles or pick up colored blocks. "Jimmy, please pick up the yellow cubes; Jaime, you find the blue cubes please."

Transitions

Using puppets, balls and verbal games, children can be encouraged to cooperate with the caregiver. The puppet can only come out and shake hands when the child walks over and sits quietly in the group. The ball is thrown to the child who is paying attention. The child is asked to walk to wash hands. Children can be helped to transition from one activity to another by using color, identifying clothing, names of the children, rhyming words or letters in a name. Songs, nursery rhymes and fingerplays can also be used effectively to help children cooperate.

Cooperative language

Use words with young children that incorporates the vocabularly you want the children to demonstrate with behavior. By using it when describing children's actions, they will learn to understand the concepts.

- "I like the way you two boys are cooperating to build a skyscraper."
- "Thank you for your cooperation in cleaning up the play area."
- "With teamwork, these blocks were picked up quickly."

Social Skills

Children need to be touched and hugged often by the caregiver. This human contact is essential to developing good self-esteem. Children need to feel wanted and loved. They enjoy hugging, giggling and holding hands with others. If adults model how we want children to work and play with others, children will copy adult behavior.

When children interact with others in the way we want, they need to be told, so they will repeat the behavior.

- " You did a good job of playing in the block area with Julie."
- "Sharing the car with Russell made the game more fun."
- "Thank you for helping Joey carry the heavy box."

Teach children that it is sometimes all right to be touched by others. This will prevent anger when one child brushes against the next or sits too close. Plan activities like opening a surprise bag or feeling for objects in a box in cramped areas. Explain how touching in such situations is acceptable. Crowd together as a book is read. Play games and sing songs that help children touch each other in socially acceptable ways.

Social Skill Building

- Use songs that promote clapping, holding hands, swinging arms and jumping in pairs. Change actions in popular songs such as "If You're Happy and You Know It, Clap Your Hands" and "Put Your Finger in the Air" to allow children to touch each other appropriately.
- Teach children how to touch others with games like "London Bridge," "Ring Around the Rosie" and "Farmer in the Dell".
- Read books that demonstrate animals and people amicably interacting. Stories like *Three Little Pigs* and *Chicken Little* demonstrate cooperative skills. Discuss the process afterwards.
- Promote good touching skills using fingerplays and nursery rhymes. Help children act out "Jack and Jill" or "Little Miss Muffet." Chant "Open, Shut Them" and clap hands with a neighbor rather than themselves.

Guidance

Teaching children to solve social problems is a necessity. Young toddlers should be redirected to different activities if conflict occurs. By age three, however, children can learn skills to help them in their interactions with other children. Guidance from a caregiver will lead to the eventual goal of self control. Parents and teachers can model cooperation, help the children achieve cooperation and teach coping behavior. *Remember that learning will not take place immediately.* The child must hear and experience cooperative skills over and over. Eventually, they will be proficient in working with others.

When a child pulls a toy away from another child, caregivers often take away the toy. This only teaches that the biggest and most powerful (the adult) wins. It sets the children up to continue the behavior of grabbing toys. Instead, use problem-solving techniques to help guide the child. When a child hits another child to get a desired toy, use discussion along with consequences such as a brief period to regroup. This should be accompanied by helping the child learn how to deal with a situation of wanting a toy another child has. Frequently adults use the phrase," Use your words." In the beginning this is too vague. We need to give the child exact words to use. This assistance has to be repeated over and over until the words come easily.

The adult asks, "What could you have done to get the toy you want to play with?" Help the child generate solutions.

- "You could ask to play with the toy."
- "You could find another toy just like the one Bobby has."
- "You could take turns. Ask Danny, 'When can I have a turn?' "
- "You could find a way to play with the toy together."
- Lastly, and always included, "You could ask me, your caregiver, to help you."

We tend to separate children who have quarreled. If we really are serious about teaching pro-social skills, then we should look for ways to help children work cooperatively. Assess the anger levels when one child hurts another. Once calmed down, have the children play or work together. "You need to help Jason rebuild his sand mountain." "Both of you are in charge of putting away the sand toys. Let's see if you can each pick up ten toys!"

Adults can teach children to stand up for themselves and not be victims. Learning to tell another child to, "Stop hitting me!" or "No, I don't want to do that!" allows the child to take control of the situation. We want children to develop courage to assert their rights. By knowing they have the tools to cope in difficult situations, children are able to prevent the trigger of "fight or flight" chemicals in the brain. Instead of fear of others, they learn to exhibit competence (Karr-Morse & Wiley 1997). Adults have to give children who are picked upon by an aggressive child the words to use. Modeling the language they need to say in adverse situations is important. This will have to be repeated often until children discover the ability to use the words on their own. Imagine how important this will be when children are pressured to use drugs as teens!

Apologies

Caregivers often make children say, "I'm sorry" every time they have a negative interaction with another child. The truth of the matter is that they are not sorry and the phrase becomes meaningless. Children hit, say they are sorry, and go about their play, not taking responsibility for their actions. Often the act is repeated in a short span of time. One strategy that is useful, uses both empathy and problem-solving techniques. After commenting on the feelings of the other child and assistance with words that could be used instead of physical aggression, the child is asked to commit to not hit or kick. Often the child will agree to try the desired behavior. Don't expect the offending behaviors to immediately disappear. This teachable moment will occur again. The adult needs to repeat assistance until the process becomes a permanent part of behavior.

Small Group Activities

Small group or circle time can promote social skills. Since children do not learn by lecturing, provide activities that teach them to touch and share which puts lessons into understandable context.

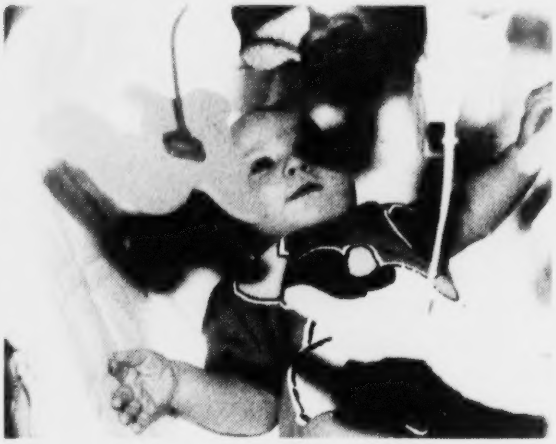
- Put two children together as partners. Give each pair one set of rhythm sticks, ribbons or streamers. Have one paper plate, windmill or tambourine for every two children. Help them move the object together with music. Let them create ways together of manipulating the article to turn around, swing high or make a noise.
- Stand in a circle. Let a child create a unique handshake and everyone in the circle repeats it. Each child has a turn at being a leader.
- Increase self-esteem and help children feel accepted by hearing compliments. Have children stand in a circle and say nice comments about the child next to them. Teach children to respond with, "Thank you!" On each child's birthday, have them sit in a chair. Let the class share the positive attributes of the child. Write them on a paper for the child to keep.
- Have pairs of children figure out ways to transport a Hula Hoop® together from one side of the room to another. Let pairs of children stand back-to-back (touching) and walk across the room as a unit.

Physical Development

Physical development is determined both by genetic inheritance and environmental influences. The child's development usually follows predictable patterns. Motor skills develop from the head down and from the midline out to the extremities. Control is gained in the neck first with the fingers being the last of the body parts to complete muscular development. Each child develops at their own rate. Some babies walk at ten months and others not until sixteen months. All are within the normal range. Consult developmental skill charts to monitor physical development. Delays of three months or more need to be discussed with a pediatrician (Sprinthall & Sprinthall 1981).

The children's daily schedule should have a balance of quiet and active times. Children should not sit all day, but conversely shouldn't be running and jumping around all day. Interspersed periods that match the child's maturational level will allow children to maintain the rest/movement balance.

Providing activities that fulfill children's physical needs at each stage helps them reach their full potential. Young children are full of energy. It is necessary to provide adequate outlets for physical activity to help prevent chaos. Repetition of physical activities puts the skills into memory, allowing children to use their muscles without having to think about how to perform a task. Activities that challenge similar physical skills should be grouped to give practice.



TV and Physical Development

Television watching is a passive activity. If watching programs such as "Sesame Street" or "Barney," encourage children to stand and participate during songs and activities on the screen. Try to prevent the children from sitting with their legs crossed or bent backwards in a "W" formation. This puts stress on the bones and isn't good for growth. Limit television watching and opt for activities that help grow young brains. The Academy of Pediatrics recommends no computers, videos and television for children under two years of age.

Infants

Infants' physical needs are simple. They depend upon adults to keep them clean and dry. They need room to allow young muscles to be exercised and stimulated in accordance with their natural flow of active time and sleep. Each baby has their own schedule of needs. Every infant has their own time table to be fed, napped or changed.

Infant Environment

- Provide infants with a clean padded space on the floor to wiggle, roll and scoot. Caregivers should be down on the floor providing language input, human contact and nurturing.
- Motivate infants' movements with large balls, mobiles and clean, safe toys. Rattles that fit their grip and toys that are easy to hold help them learn to grasp.
- Eliminate walkers. They are not good for infant development. Walkers not only restrict muscle development, but put too much weight on hips, knees and ankles. New studies suggest that infants who cannot see their feet, walk at a later date than infants who are able to see their feet as they move.
- Use swings only for short diversions. Infants should be given no more than fifteen minutes in a swing. The swing restricts natural movements of the limbs.
- Put infants on their backs to sleep to prevent Sudden Infant Death Syndrome. When infants are awake, mobiles, mirrors and bright pictures should be in the crib for stimulation. Cribs, when used for sleeping, need to be in a quiet area with dim light to allow sufficient rest required by growing bodies.
- Feed infants on demand. A rocking chair lends comfort as a bottle is given. Children who have moved to solid food should be held while fed for the first six months to give the one-on-one nurturing that is optimum. When able to sit up, short periods in a high chair provide a good place for feeding. Provide a toy to keep little hands busy. Children should not be left in high chairs for long periods of time.
- Create places that are safe for infants to crawl or pull themselves up to a standing position and attempt to walk. Padded areas allow many falls without harm. Once walking, large, colorful toys should be within arm's reach.

Toddlers - Inside Activities

- Arrange a safe area to promote standing and walking skills. Toys should be placed at eye level and available without having to depend on an adult to get the toy. Walkways should be kept clear of clutter.
- Promote large motor development with pull toys, push toys, transportation toys, large blocks and balls. Containers to dump and refill attract interest. Toddlers like repetition of play, but change activities often due to short attention spans and distractibility. Multiple toys allow for peaceful, parallel play.
- Create low obstacle routes for children to navigate. Cushions, tunnels and boxes to crawl under, over and through attract toddlers and stimulate physical movement.
- Keep falls safe with padded areas. Safe low climbing apparatus keeps toddlers from climbing on chairs and tables.
- Exercise young muscles with creative movement to music.
- Encourage the use of small and large muscles using water and sand tables with containers that are easy to fill and pour. Low easels with easy to manipulate brushes and no-spill containers at toddler height allow children to practice large and small motor skills.
- Tear paper into pieces to provide both large and small muscle practice. Large nontoxic crayons or markers to use on big pieces of paper are appealing to toddlers.

Outdoor Activities

Supervision is required at all times.

- Provide toy lawn mowers and other push toys, wagons, walk and ride scooters and low climbers. Moveable tires, large, lightweight blocks and big boxes allow children to independently design their play.
- Add water play, sand play and painting to the outside environment to allow small muscles to develop.
- Provide practice walking up steps, crawling, climbing and sliding on a variety of low, climbing equipment.
- Incorporate short walks that do not tire toddlers during outdoor play. Time to jump and run safely helps channel energy.
- Make available a variety of large, lightweight balls to roll, kick and throw. One-on-one throwing with a caregiver teaches catching and throwing techniques.
- Have bubbles to blow, play dough to squeeze and single-piece puzzles to add pizzazz to the outside routine.

3-5 year-olds - Inside Activities

- Find a space to put tumbling mats and help children learn somersaults, cartwheels, crab walk, hopping and jumping skills. Try to eliminate waiting time by having other activities available or multiple mats. Supervise mat areas.
- Exercise large muscles and teach cooperation as children gallop and run.
- Provide scarves, Hula Hoops®, paper plates and rhythm ribbons to move creatively to music. Marching with rhythm instruments stimulates small and large muscles at the same time.
- Create an obstacle course using indoor slides, low balance beam, moveable steps, tires, boxes and masking tape lines. Allow children to climb over, under and through, walk, hop and jump in a confined space. Learning to move in one direction with others exercises muscles while teaching cooperation.
- Provide physical transitions using creative movement with familiar songs. Bending and stretching not only is physically important, but a planned release for excess energy.
- Use fingerplays and chants such as the "Itsy Bitsy Spider" and "Open, Shut Them" to help digits coordinate.
- Allow controlled jumping and rolling with songs such as "Ten in the Bed" and "Five Little Monkeys Jumping on the Bed." Keeping children spread apart prevents accidental injuries.
- Keep control as children use large muscles during marching, hopping, galloping and jumping to music.
- Modify "Ring Around the Rosie." Instead of falling down, everyone can jump or stand on one foot. "Hokey Pokey" and other movement games are fun and help children use their energy appropriately.
- Use other methods to apply paint at the easel such as sponges and objects for printing to exercise muscles. Supply both large and small paint brushes to let each child choose the implement that is easiest to control. Spreading glue and picking up items to put into the glue aid not only muscle development, but visual coordination.
- Provide scissors with wallpaper books, magazines or strips of paper. Free-style cutting gives the best motivation to learn to cut. Cut out grocery coupons to share with families. Envelopes to put the scraps in add to the fun.
- Place a variety of sizes of pencils, non-toxic crayons and markers to encourage children to experiment and find the size best suited to grasping. Rubber stamps and ink pads increase opportunities for using different muscles.
- Provide exercise for hands and arms with play dough and clay. Adding blunt scissors, popsicle sticks, dull plastic knives and cookie cutters for cutting out shapes increases the variety of skills being practiced.

3-5 year-olds - Outside Activities

Supervision is required at all times.

- Provide a variety of climbing apparatus that involves the use of all parts of the body. Swings and slides meet kinesthetic and balance needs.
- Add squirt bottles, a variety of containers and scrub brushes to water play. Large paint brushes allow children to use their arms in a sweeping motion as they paint with water on walls, sidewalks or play equipment.
- Include sand equipment such as buckets, shovels, sifters and molds. Vary the play by wetting down the sand, burying treasures (colored rocks), adding transportation toys and cooking pans. This favorite activity occupies many children for long periods of time.
- Garden with shovels, hoes and trowels to give little muscles a challenge. Watering with a hose or watering can requires concentration and strength. Picking weeds aids eye-hand coordination.
- Stimulate the use of many different muscles with large bubble wands, Hula Hoops®, windmills and dress-up clothes. Enrich the outside environment while challenging little muscles by adding baby buggies, large transportation toys and jump ropes.
- Develop coordination and spark creative play using bikes and wagons on a paved path. Helmets are a must for safety. Add a large appliance box for the gas station, drive in fast food restaurant or car repair shop.
- Provide low basketball hoops, soccer balls and goals, kickballs and footballs. Encourage beginning baseball skills using large bats with wiffle balls placed on a cone. Allow the running and throwing skills to develop without a formal game with rules.
- Go on movement walks with everyone taking baby steps, giant steps, hopping over sidewalk cracks or jumping with feet together past a tree. Crouch down and take steps, walk on tiptoe or pretend to skate as you proceed.
- Make woodworking appropriate for small children. Helping children to hammer nails or turn screws into a log or soft piece of wood develops new muscles in a fun way. *This requires extra supervision.*
- Create water tables by cutting tires in half horizontally. Stack two complete tires underneath for good child height. Fill with water and add boats or pouring and measuring containers.
- Hammer leaves or flowers that are placed between two pieces of muslin on top of a wooden block. A stain shaped like the leaf or flower is revealed.

How Children Learn to Think

Giving children the opportunity to develop critical thinking skills is the best legacy you can give them. Mastering how to learn on their own will stay with children their entire lives and give them a feeling of success. Adults don't always have to teach, but can simply allow children to learn. Too often, caregivers feel they must direct the learning. Students' minds will be involved when adults create active learning environments and ask questions about their play. As the children interact during the experience, they use their thinking skills to problem solve.

Repetition of material in the same form enters it in working memory. After a prolonged period of time, where children repeat the same task over and over in the exact same way, they stop thinking. Just as reciting numbers or alphabet letters every day becomes habit, tasks also can become rote. People can add or change the environment frequently to provide a challenge.

Environmental Changes

- Keep puzzles the same for one week at a time, then change to different puzzles.
- Sing the same songs but change a few words for fun. "Old MacDonald" can have a school or an orchard.
- Vary items: add a box into blocks, put sponges at the easel; place hats in the dress-up corner or tie streamers on bikes.
- Add a prop box into the pretend area. Change the theme to restaurant, beauty shop, grocery or library.

Did you know that when people are teaching others, more is learned? Children learn the least when an adult is "teaching." They may not be paying attention as the caregiver talks. They are only passive, not actively involved. When adults encourage children to participate in the discussion, develop plans with others or make decisions together, children learn 70% of what is talked about (Sorgen 1999).

Involvement Decisions

- Use the "Plan-Do-Review" process from " High/Scope" to helps children decide what to do and afterwards, let them explain what they did.
- Get consensus on rules for the new playground equipment or let children decide what to have for a picnic lunch.
- Pick, feel and discuss eaten leaves from the garden. Together research in books how to get rid of offending insects. This helps with knowledge acquisition.

Children learn 80% when they experience the task personally. Not much learning takes place as children watch adults make meatballs. Yet, when they add the ingredients and put their hands into the meat mixture and experience the gooey texture, smell the spices and try to roll the balls, they are totally immersed in learning (Sorgen 1999).

Extension Experiences

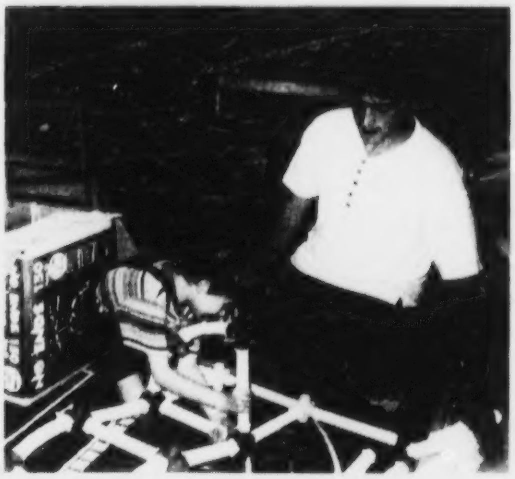
- Take a known story and write a class version with the children picking the adventures.
- Help children plant seeds in cups or wet sponges. Watch the roots' growth. Put some in sunlight; others in a dark closet. Chart the difference.
- Have old appliances that children can take apart with screwdrivers.

The brain is the most engaged when people are teaching others. 95% of learning takes place when people try to transfer knowledge they know to another (Sorgen 1999). We need to create opportunities for one child to teach another.

Peer Teaching

- Let children who easily put together puzzles, work with others who struggle. Parquetry or blocks with patterns often require two children for completion.
- Allow two children to paint at the easel at the same time.
- Let one child explain to the caregiver how a tower was built.
- Let children retell a favorite story to another child.

Look for opportunities where children can develop hypotheses to solve problems. Allow them to test their predictions.



Develop Hypotheses

- Buy and plant a bulb. Let the children guess the height and color it will be. As it grows, chart the development. See how many guessed the correct color.
- Let children develop plans to capture a missing hamster. Actually try their solutions.
- Let children tell what birds eat. Hang bird feeders with the different substances (bird seed, bread, sunflower seeds, nuts). Check daily to see what the birds really ate.

Intellectual Development

Activities That Build Children's Brains

There is no limit to the activities that create an optimum environment for children to think and learn during the routine of the day. Only your imagination will limit the variety of tasks.

Group Activities

- Read, read, read! Read books, notes, charts, posters. Use your print rich environment.
- Let children guess what is in boxes that arrive at the school before opening them together.
- Make group time active, not passive. Reduce sitting and listening time. The more senses that are involved increases the placement into memory.
    - Let each child use a car, truck, train or boat as you discuss transportation.
    - Give everyone five or ten small objects to manipulate when counting (too large to swallow) .
    - Let children help write their own names and illustrate experience charts. Scribbles are acceptable.
    - Encourage children to share and discuss experience charts with parents.

Transition Activities

Transitions are techniques that move children from one area to another. They can be used to provide a bridge between activities. They allow the adult to control the movement of individual children and groups. They prepare the children to move.

- Use riddles, songs and chants.
- Create pretend images.
    - "Carry this helium balloon carefully to the sink to wash your hands."
    - "Tip toe on the rocks in the stream to line up at the door."
    - "Hold this baby kitten carefully as you walk to the rug and sit down."
- Help move children by identifying groups: the first letter of a name, identifying name of a class or color of clothing.

Snack Activities

Snack time should be a relaxed period of socialization and conversation. Each child's individual preferences should be honored. Try to keep this as inde-pendent an activity as possible by having small pitchers for child-ren to pour their own drinks. Craft sticks spread butter or peanut butter. Children as young as two can begin to prepare part of their snack. Use a diverse vocabulary that reflects the names of ethnic foods. As children eat, talk about the origin of the food and other animals that eat the food and the path from farm to grocery store. Ask the children to compare foods they like and dislike.

- Use facts about the snack to form a riddle for the children to "discover" the food that will be served.
- Let children count out their own premeasured portion of pretzels, goldfish crackers or apple slices.
- Have snacks that the children can prepare easily.
  - Spread peanut butter, soft cheese, fruit spread or tomato sauce on crackers or bread.
  - Sprinkle grated cheese, cinnamon or herbs on cream cheese, applesauce or fruit.
  - Give a small amount of dip to use with celery, carrot strips or cucumber slices.
  - Fill the cavity of celery slices with cream cheese, peanut butter or egg salad. Sprinkle on raisins or sunflower seeds.
- Learn the names of ethnic foods. Compare the taste of pita, matzo and bread, or Chinese rice noodles and Italian pasta.
- Compare the taste of:
  - Red, yellow and green apples.
  - Red, black and green grapes.
  - A variety of nuts.
  - An orange and a tangerine.

Outside Activities

Supervision is required at all times.

- Add moveable activities to the play area often. This keeps the play ever changing.
- Change the atmosphere with bubbles, paints for cement areas, or large boxes. Use paint brushes with water for walls, sidewalks and play equipment.
- Bury shells or pennies in the sandbox, hide plastic or stuffed animals on the climbers or distribute magnifying glasses.
- Bring dress-up clothes, dolls, doll carriages or large blocks out for different play.
- Enhance the outdoor area with woodworking, play dough and water play.
- Plant and care for a garden. This might engage only a few children a day. Pick ripe vegetables and make a salad; pick flowers.
- Add a stove to the sandbox, a mirror near the climber or a big pillow and books under a tree for special events.
- Put up a tent, go on a hike or run a hose in the mud using sticks to create a dam.
- Have available a portable tape or CD player with a choice of tapes and rhythm and band instruments for spontaneous parades.
- Fill zipper plastic sandwich bags or plastic containers with sand. Add food coloring and shake until the sand is colored. Cut a hole in the corner of the bag or use spoons to sprinkle colored sand in the sandbox to create a painting.

Cooking Activities

Children not only love to help prepare food, but in doing so, every sense is engaged thus stimulating multiple areas of the brain simultaneously. Cutting, stirring and pouring are good for eye-hand coordination and small and large muscular development. This is a wonderful opportunity to teach safety, cleanliness and nutrition. Use this as a time to extend cognitive processes. Discuss how fruits and vegetables grow. Find out how flour and sugar are processed. Write a sequence story about the cooking experience. Children are eager to sample their own cooking. Taste and smell are paramount during cooking, but the pride in the creation process boosts the emission of chemicals that bring about feelings of well-being.

- Make an individual pizza on toasted English Muffin or bagel half, soft tortilla or round cracker. Children spread the tomato sauce and sprinkle grated cheese. They can be eaten as prepared or heated to melt the cheese. Fruit or vegetable pizzas can be a variation.
- Place lids on plastic containers filled with instant pudding mix and milk. Shake for several minutes. Open and eat.
- Supervise the cutting of fruits or vegetables for a salad. Talk about the smell and taste of the individual items. Discuss where foods are grown.
- Help children measure, add the ingredients and stir vigorously. Cookies and muffins are fun to make. Try to keep the group small so no one is waiting a turn to help. Adults bake the items.
- Cook and taste foods from all cultures to create a knowledge base for diversity. Put out bowls of ingredients and let children fill their own pita to make falafel (Israeli) or tortillas to make tacos (Mexican).
- Use fruit to make pancake faces or dried fruit and peanut butter to decorate apple or pear halves.
- Cut up fresh and canned vegetables to create soup. As the soup aroma fills the area, read the folk tale *Stone Soup*.
- Spread bread with peanut butter or cheese to make a sandwich. Use cookie cutters to create interesting shapes.

Stories and Books

Children need to be read to from infancy. Hearing the spoken word in conjunction with seeing pictures helps language development. The warmth and soothing feeling of sitting on a lap helps create a love of reading. Even though most stories are read to multiple children in a group situation, try to create time for each child to have a one-on-one reading experience. Children ask for the same book over and over. This repetition helps to make the connections in the brain more permanent and puts the words, sounds and rhythm of the words into memory. A variety of activities can expand the parts of the brain being stimulated.

Children learn literacy skills by being read to often. Plan to read a minimum of two stories a day. Reading more books is advantageous. Not only do children learn the cadence and rhythm of spoken language when listening to a book being read, they also learn print literacy. They understand what is the top and bottom of a book, how to turn pages and how to get clues from pictures. They can be shown left-to-right sequencing and might learn to visually move their eyes along the print line. Children who are read to often do not read or talk earlier than other children. They may do better scholastically. The early wiring of the brain gives them a firm advantage.

Use "predictable books" often. These are books that repeat a verse or rhyme several times in the story. *Millions of Cats* by Wanda Gag and *Caps for Sale* by Esphyr Slobodkina are examples. Children quickly learn the repeated portion and are able to "help" in the telling of the story. Another kind of predictable yarn is one where an item is added from time to time with a review of all that has gone on before. *I Know an Old Woman Who Swallowed A Fly* or Dr. Seuss' book *Green Eggs and Ham* are in that category. Children hear the list repeated until it enters into working memory.

Storytelling is a different way to present a story. There are no pictures so children can create their own visual images. Imagination is sparked. The storyteller's dramatization will keep the child's attention if the voice and pitch changes with character. Eye contact and body movements enhance the performance. Storytelling enhances listening skills. Storytelling is especially useful when riding in a car or bus or waiting for a meal or snack.

Using flannel board stories is a variation of storytelling. Flannel board stories can be purchased or you can make your own by taking books in poor condition and recycling the pictures. Secure felt or Velcro™ onto the back of pictures. Tell the story as the flannel board figures are manipulated. After you have told the story several times, let the children move the figures as they try to recreate the tale.

Writing journals and helping children create their own stories can begin before children have the ability to write. Assemble several pages of newsprint or other paper into a small booklet. Let child decorate the front, writing their name in large, bold letters. Each day or week, have a child tell you a real occurrence or an imagined story. Have the child sit next to you so the text is seen from the correct angle. As you write the dictated words, repeat each word as you print it. After the entry, read it back to the child and let the child illustrate it.

Writing about a drawing or painting extends the printed word to art. There is some disagreement from educators whether you should write directly on a child's product or on a separate piece of paper that is later attached. Use whatever is in your comfort level. Let the child dictate about his creation. Toddlers and two year olds might just name parts of the picture. Older children will dictate long explanations or create stories. This same technique can be used in the block area as children either describe how they built their structure or create a story around the building.

An experience chart is a written story of one adventure or separate activities of different children. Using large chart paper, children see adults translating spoken word into print. This gives meaning to printed language. Small illustrations at the end of each sentence help children give meaning to the writings. Beginning each sentence with the name of a child helps that child identify what was said. Experience charts can be used to tell what children did for a holiday, describe the sequence of a trip to the fire station or grocery store or describe a science activity such as incubating eggs.

Reading Activities for Infants and Toddlers

- Read short, simple picture books.
- Point out pictures and use one or two descriptive words.
- Let the child hold and even taste the book (plastic or cardboard books). Help turn the book upright.
- Read books with lots of animation and expression. Use varied pitches and tones.
- Act out the pictures: pretend to smell the flower or taste the food as you describe the action.
- Stop the moment the child loses interest.
- Place two 3"x5" photos back-to-back into a plastic zipper sandwich bag. Seal. Connect three or four bags together down the side that closes with yarn or ribbon to create a photo album for the child to hold and view.

Reading Activities for 2-5 year-olds

- Read the book with lots of animation and expression in your voice. Read the pictures as well as the words.
- Look at a picture from a magazine. Let the child create a story surrounding the picture. Attach the story to the picture.
- Let children learn to love the sound of your voice as you read. Help them listen to the rhythm and cadence of language. Don't always try to use story time as a teaching moment.
- Stop occasionally and let the child add the next word as the book becomes more familiar.
- Let the child predict from the cover or a picture what will happen next.
- Help the child see the same word that is repeated by pointing out the word's shape and the letter sequencing. Show words that begin with the same letters. Sound out letters.
- Emphasize words that rhyme. Generate a list of other words that rhyme.

Enrichment Activities for 2-5 year-olds

- Let children imagine what happened before or after the printed story.
- Help children create their own version of the story. Instead of the *Three Little Pigs*, perhaps their story would be about the *Three Little Lambs*. Write the new story on poster board for the library area.
- Read the story out loud as the children act it out.
- Compare two books with similar characters: the wolf in *Little Red Riding Hood* and the wolf in *Three Little Pigs*. How are they the same; how are they different?
- Compare two editions of the same folktale such as *Cinderella* or *The Three Pigs*. Compare the pictures of the characters and the set of adventures.
- Ask limited questions about the plot to assess comprehension. Asking open-ended questions about the plot spurs children's thinking skills and creativity. "How long did it take each pig to build its house?"
- Have a tape recorder with a tape and story book.
- Let children retell the story in their own words. Tape record their original story.
- Let children dramatize the story in their own way.
- Wrap cereal or cracker boxes in brown paper from grocery bags. These will become the child's own book. Have the child dictate a story. Print it on a paper that will fit one side of the box. Let the child glue it to the box. The child can illustrate the other side with markers or crayons. Write the title on the spine and put in the library area.

Book Extensions

Create a box around any favorite book. Look for props that are described in the story. After reading the book many times,. let the children recreate their own version of the story.

- Read *The Three Bears*. Have three different sized toy bears to represent the mother, father and baby. Add three bowls, spoons and carpet squares to serve as beds with three blankets. Put the box near three chairs in the room. The story can be acted out, then dictated by the children and written down by the teacher. Place various versions of the book in the box. Compare for similarities and differences.
- Read *The Hungry Caterpillar* by Eric Carle. Collect various large, plastic fruits, a toy caterpillar and a butterfly puppet . In addition to the play, the children can be encouraged to dictate their own version of the story. Cookies with holes can be baked. Children can decorate toilet paper rolls to be transformed into cocoons holding tissue paper butterflies for retelling the story. This story can be acted out. New versions of the story can be created with different foods.
- Read *The Three Little Kittens*. Choose stuffed kittens, flannel board or kitten puppets. A toy mouse, three sets of mittens, a clothesline, a plastic pie, three plastic plates and a washtub with a scrub board can be used for the props. Children can act out the story, dictate it to the teacher or tell other children.
- Cooking along with a story enhances the understanding of the tale as well as stimulates both taste and smell, once again enriching the stimulation to the brain. Preparing green scrambled eggs after reading *Green Eggs and Ham* by Dr. Seuss, blueberry muffins after hearing *Blueberries for Sal* by Robert McCloskey or eating pasta and hearing *Strega Nona* by Tomie de Paola is exciting and fun.

Music and the Brain

Listening to Mozart cannot raise a child's IQ! Music does relax children. When they are happy and enjoying something, chemicals are released in the brain that makes learning easier. Music uses the same pathways used for problem-solving and mathematical skills, but just listening to music will not make a child smarter (Routh 1997). In 1998 Florida's legislature dictated that there must be thirty minutes of classical music in every early care classroom. This can cause problems unless the music is used with developmental discretion. Forcing children to sit and listen will not have the desired effect. Conversely, some educators feel that if thirty minutes is good, continuous music will be better. Children exposed to continuous music of the same pitch learn to block out the music and not listen. Music should start, stop and have variety.

Loud rock and roll music or rap music with a loud, pulsating beat may not be good for developing brains. All music played too loudly bombards the middle ear and may cause hearing loss.

Listening to a variety of music with adults pointing out highs and lows or fast and slow tempo teaches listening skills. Adding words to music aids language acquisition. The rhythm of music helps put the words from the music into permanent memory (Sorgen 1999). Songs teach rhyme, rhythm and cadence.

Alternate Ways to Use Familiar Songs

"Twinkle, Twinkle, Little Star"

- Sing the song alone or with hand motions.
- Sing other songs with the same tune, such as the "ABC Song" or "Little Arabella Miller."
- Sing the song in rounds.
- Think of other things that twinkle. Sing the song using other words instead of star: headlight, flashlight, lightning bug.
- Turn off most lights. Give each child a flashlight to turn on and off while singing.

"If You're Happy and You Know It"

- Sing with hand motions and no words; hum the tune.
- Make up new verses and use other actions: hop on one foot, jump up and down, etc.
- Sing other songs with the same tune such as "Put Your Finger in the Air."
- Sing the two songs at the same time. You will need to turn the two groups around so they only see the leader of their song.

Song Extensions

"She'll Be Coming 'Round the Mountain"

- Act out the story as you sing.
- Change horses to motorcycles, race cars or rocket ships. Help children make up new verses.
- Write the song on poster board using pictures for some of the words. For example mountain, white horses, waving hands and chicken and dumplings would be depicted with pictures.

"Yankee Doodle"

- Have the children clap hands on their legs (galloping) to the tune.
- Have several children act out the song as other children sing. Switch roles so everyone gets a turn.
- Play rhythm instruments as the song is sung. Divide children into two parts. Some play instruments on the first line; others on the second. All play during the chorus.

Foreign languages are learned easily in the first ten years. Children can be taught many foreign words through song. These can be reinforced by using the same words in other situations. Substituting the Spanish or French word for an English word in a familiar song, helps familiarize the children with words of other languages.

Foreign Language Activities

- Sing the native version then English version of "Frère Jacques" (French), "Kumbaya" (African), or "La Cucaracha" (Spanish).
- Listen to recordings of children's songs in other languages.
- Learn "Happy Birthday" in several languages.

Use chants, fingerplays and nursery rhymes for repetition and cadence. Memory is increased with rehearsal. When you add hand and body motions you are helping the children use multiple parts of the brain at the same time.

Enrichment

- Chant as well as sing songs like "Miss Mary Mack" by Ella Jenkins or "Humpty Dumpty" by Thomas Moore. Clap out the rhythm or use drums and tambourines to keep the tempo.
- Act out nursery rhymes like "Jack and Jill" or "Little Miss Muffet."
- Let children predict what might have happened before or after the action in the nursery rhyme.
- Compare Jack in two rhymes: "Jack Sprat" and "Little Jack Horner."
- Use hand and body motions to increase brain stimulation. Raffi's "The Wheels on the Bus" is a favorite. Write the song on a chart and use pictures for headlights, horn and wheels.

Fingerplays give children an opportunity to talk and move simultaneously. You can add thinking skills by switching themes of familiar fingerplays. Point out the rhyming words or help children think of new ones at the end of each sentence.

Musical Extensions

- Change "The Itsy Bitsy Spider" to the great big or middle-sized spider. Use different pitches of voice to reflect the size of the spider. Sing Raffi's "There's a Spider on the Wall" song with it.
- Change "Row, Row, Row Your Boat" to Drive, drive, drive the car, slowly down the hill. Let the children help think of new verses.
- Recite counting rhymes and popular fingerplays. Count by twos or count backwards for variety.
- Assemble a kitchen band with homemade drums, kazoos and cymbals. First, clap out the rhythm of a song. Then, use the instruments to accent the cadence as the children march to music.

Musical Instruments

Learning to appreciate instrumental sound can't begin too early. Children are fascinated with real instruments. Giving them the opportunity to experiment not only with rhythm instruments and toy instruments, but with real musical instruments will give them memories that just may inspire them to be musicians. As children create music and hear the sounds produced, their brain is aroused in many diverse areas. Bring in guest artists to dazzle them with the music of a violin, piano or flute.

- Use triangles, tambourines, kazoos and rhythm sticks to accompany music. Teach fast and slow, high and low and loud and soft. March as children play the instruments.
- Purchase good drums including bongo and African drums for the children to hold. Let each child create a drum song and others repeat the short pattern. Make drums from empty coffee cans or oatmeal containers.
- Allow children to hear instruments played well and to experiment with them. Many homes and centers have pianos or keyboards. Rules that prevent pounding will exercise small fingers and let them hear different pitches. Listen for repeated patterns.
- Visit a high school band or orchestra class. Ask to hear one instrument at a time. Ask to let the children touch the instruments and feel the vibrations when they are played.
- Borrow one instrument like a used trumpet from a music store. Let the children experiment. Try to have a different instrument each month. *This needs good supervision.*
- Use musical stories like "Tubby the Tuba," "Fantasia" and "Peter and the Wolf" to introduce instruments to children. Have books with pictures of instruments available.
- Play classical music. Point out the drum in the background or the flute or piano when they are played. Pantomime the action of the instrument being played.

Enrichment Activities

Changing and enriching the environment not only gives children new experiences, but motivates them to try new activities. The room arrangement remains the same, but a new task is added to the familiar area to extend learning once a week. Now the rote play that has been entered into working memory becomes new and exciting, stimulating new brain connections to form. Thinking is at its highest level as children approach these activities. Adults need to step back and let children create the atmosphere suggested by the items.

Experience or Prop Boxes

These boxes contain supplies around one theme that can be easily stored. Adding one box to the pretend area, water table or block area changes the entire spectrum of play. Setup is the key to success. Leaving the articles in the box will not promote creative play. Children tend to just dump out the box and sort out the items they want and begin play. Setting the area to resemble the theme leads to excitement and motivation and helps organize the play.

Woodworking Prop Box

This must be well supervised.

- Supply large styrofoam pieces, golf tees and children's hammers for toddlers and young three-year-olds to begin woodworking.
- Provide small pieces of soft wood, large headed nails, children's hammers, old cardboard puzzle pieces, bottle caps, roofing disks and pliers to allow the children to begin making wooden objects. This can begin at ages three and four. Markers and paint may be offered to decorate the finished product.
- Have soft wood with pre-drilled holes, screws of all sizes and screwdrivers to allow practice of the skill of adding a screw.
- Supply hammers and nails with large heads or screwdrivers and large headed screws in the outdoor area. Have a large log or piece of firewood available to hammer the nails into and practice turning screws.

Pretend Area Prop Boxes

- **Bakery** - Items include aprons and chef hats, flour shakers, sifters, plastic bowls, wooden spoons, hot mitts, rolling pins, cookie cutters, cake and muffin pans. Added to the kitchen area, pretend play abounds. Play dough can be added as well as flour if so desired.
- **Office** - Put out typewriters, telephones, adding machines with tape, expired checkbooks, ink pads with rubber stamps, envelopes and stickers, a variety of scratch paper and a multitude of pens and pencils. Briefcases and cardboard mailboxes add to the experience.
- **Doctor/Nurse** - Provide paper surgical gowns (cut to child length), masks and hats, latex gloves, stethoscopes, blood pressure cuffs, Ace® bandages and tongue depressors (donated by physicians or a hospital). Toy doctor kits, gauze bandages and tape and Band-Aids® add to the area. Mats for the patients to lie down on or dolls for patients help to make the play experience special.
- **Barber/Beauty Shop** - Put out craft sticks with shaving cream to make great razors for pretend shaving. Provide a mirror for the children to watch themselves (a floor mirror laid down the middle of a table or individual makeup mirrors). Brushes, curlers and curling irons with the cords removed to use with wigs on head stands, nontoxic make up with cotton tipped applicators, peel off children's nail polish and bowls of soapy water with fingernail brushes compliment the beauty area. Boxes of jewelry, scarves and hats change the play. Chairs with magazines and paper bags for hair dryers are a nice addition. Encourage boys and girls to try all activities.
- **Grocery Store** - Arrange paper bags, empty cereal, detergent, cookie, cake mix and cracker boxes; empty cans with the rim sanded smooth; used plastic drink and milk cartons and plastic foods on shelves to resemble a store. Cash registers, toy money (just pretending is fine also), aprons for the clerks, old credit cards or plastic hotel "keys," and grocery bags, toy carts or baby buggies allow for buying and taking the items "home."
- **Pet Shop, Shoe Store, Restaurant, Post Office, and Shoe Repair** make other interesting experience or prop boxes. Listen to the children's interests and they will guide you to create more boxes.

Block Area Prop Boxes

- **Construction site** - Create the building site with hard hats, pretend tools, aprons, large dump truck, tow trucks and cranes.
- **Painter** - Stimulate play with paper painter hats, large wall brushes, paint rollers, empty buckets or paint cans and painter's aprons.
- **Simple Machines** - Supply large, flat lightweight boards or strips of wall molding with blocks to make inclined planes. Add small cars or large marbles. (Not for very young children.) Create a fulcrum from blocks and the board. Add a pulley and rope to move blocks in buckets around the area. Consult a hardware store.

Table Top Prop Boxes

- **Appliance Repair** - Take apart and "repair" broken appliances, radios and toys with screwdrivers, pliers and hammers.
- **Nut Box** - Put a variety of nuts with a nut cracker or small hammer in the box for looking, feeling, counting and tasting. Books or charts on different kinds of nuts and storybooks about squirrels can be added.
- **Nature Box** - Have different sizes and shapes of shells with a shell book. Assemble leaves and a leaf book for classifying and sorting. Include glue, cardboard and markers for art projects.

Outdoor Enrichment Activities

- **Camping** - Erect a tent in one area of the outdoor play area. Establish a rotational system that gives 15 minutes of play to a small group of children. A large appliance box can be used as a camper.
- **Car Wash** - Use sponges, soapy water and scrub brushes to clean wagons and tricycles. If possible, once a year bring a real car into the area and let the children thrill to the process of washing a car.
- **Bubble Mania** - Place a variety of bubble blowing wands of various sizes throughout the play area. Use fly swatters, cans with both ends removed and sanded smooth, six pack plastic holders and large bent hanger wands with the bubble mixture placed in shallow pans.
- **Decorate the play area** - Weave crepe paper into the fence. Wrap play equipment with thick yarn and crepe paper. Use water color paint to decorate play apparatus. Take pictures and write a story.
- **Target Practice** - Hang paper plates from trees with yarn. Give children squirt bottles filled with colored water and let them aim at the plates, watching them twirl as they are hit.

Water and Sand Table Prop Boxes

- Collect a variety of plastic or rubber fish, sharks, alligators, rocks, plastic plants, shells and many sizes and shapes of boats to change the water table into a lake or ocean. Not all items need to be put out at the same time.
- Add clean potting soil. Put small shovels or spoons and containers as well as plastic animals into the dirt. Plastic plants and small replicas of vegetables or flowers change the play.
- Freeze or form mounds of ice using ice cubes made with colored water. Put in plastic people, polar bears, fish and plants. Add shovels and cups for the ice as it melts.
- Add food color, glitter and sequins to both sand and water with the usual pouring and measuring items to change the play. (Not for use with very small children.)
- Have a set of baby food jars for each child in the water table. The jars contain red, blue, yellow and plain water. Have an eyedropper or pipette for each child to experiment with mixing colors. Have nearby a large bowl to pour muddy colored water into and a pitcher for them to refill plain water into the empty jar.
- Make silly putty. Pour liquid starch over a small amount of white glue. Knead until it turns to putty.

Special Days

Theme days are fun and add variety. Instead of all the usual interest areas, all activities have items to help revolve around a theme.

- **Baby Day** - Have children bring in a baby doll. Provide extra dolls for children who don't have one. Build houses for the dolls in the block area. Cook and take care of the baby dolls in the family living area. Count, weigh and measure the dolls to determine size, then chart the results. Wash baby dolls in the water table. Set up an area with infant toys and books. In the book area put many books about babies. Listen to baby songs and lullabies. Eat baby food fruit for snack.
- **Block Day** - Use a variety of blocks in the different play areas. Put floor blocks in the block area and small blocks in the family living area that can be used as food that is cooking. Snap blocks, Lego® or bristle blocks and colored blocks appear on tables. Put books that depict blocks or block play in the library area. Print with plastic blocks dipped in paint. A variation of this for older children is Lego® Day. Use a variety of sizes of Lego® blocks to build.

- **Moving Day** - Wagons, suitcases and boxes are added to all areas. Children are encouraged to fold, pack and move equipment to a new destination in the room. Unpacking and putting away occupies children as new signs are prepared for the shelves. Later, all is moved back to the original storage space unless the adult decides to leave everything in the new configuration. This is a good activity when a child is moving.
- **Cleaning Day** - Let children be involved in washing down furniture with wet sponges and large towels. Smocks and doll clothes can be washed in water tables or buckets and hung on clotheslines (outside is ideal). Bikes and wagons go though the "car wash" outside. Paint brushes and water clean the paved areas outside and the chalkboard and walls inside. Easels are scrubbed with large brushes to take off the caked paint. This is messy, but fun! Great for a summer day!

Fine Arts For Children

Using music, literature, theater arts and art appreciation at an early age allows children to not only learn, but appreciate culture. While engaged in fine art activities many areas of the brain are stimulated at the same time. Social skills are reinforced during many of the activities. Children feel proud of their accomplishments. The events are usually open-ended enough to allow for choice.

Look at reproductions of masterpiece paintings. Talk about the colors and what is depicted. Discuss the action, sounds and smells viewed. If the picture has animals, have pieces of fake fur to feel. Assemble items such as fruit and objects found in still life pictures to feel and smell. Allow the children to hold or caress a sculpture. Have clay or paint available for children to experiment with as they view the art objects.

Puppets

Developing activities around puppets provides children with a unique acting situation. Often children do not know how to use puppets. They have to be taught how to use them correctly. A puppet theater is not necessary and can create difficulties when children are just beginning to use puppets. Let them stand behind a chair at first. Later simple theaters can be made out of large boxes.

- Develop a puppet tape that can be placed in a listening area with several children. Each child holds a puppet and moves to directions on the tape that teach the child to manipulate the puppet to eat, sit, dance, twirl, bend, cry, laugh and sleep. Once children learn how to use a puppet they can then use them for acting.
- Read a story as the children manipulate the puppets. *Chicken Little*, *Gingerbread Boy* and *Three Little Pigs* are easy for children to act out. After they know the story well, props such as small plates and plastic foods can be added.
- Sing a familiar song or fingerplay as children create the story with puppet characters. " The People on the Bus," "Put Your Finger In the Air" and "She'll be Coming Around the Mountain" are fun using puppets.
- Write down children's own puppet stories using dictation.
- Make puppets using a variety of materials. Be sure the task is appropriate for the age level and skills of the children. It can only be their product if the child makes it, not the adult. Spoons, paper plates, paper bags and towel holders create fun puppets.

Creative Dramatics

Acting out a story has much value. Children learn to creatively interpret a story. They must work cooperatively with others for the drama to evolve. Building self-esteem and confidence are benefits. Children's oral language skills are practiced in a fun way. Small children usually cannot act out a story. The adult has to facilitate it. It is best to use a small group. Keep the expectations low and remember these are very young children. Should props be used or not? In the beginning, props and costumes are distracting for the children. Hats don't stay on, paper costumes tear and often the bowls are at the other end of the area from the children or they drop them. After they're familiar with the story props can be added.

- Begin with mime. Teach children how to pretend. Act out popcorn kernels frying in a pan, hungry kittens looking for something to eat, driving a car or fishing on a sunny day.
- Teach children how to use their imaginations to perform a task using the game of charades.
- Act out a song that tells a story such as "Six Little Ducks" by Raffi or "The Ants Go Marching." Use a tape or have a few children sing as others act it out.
- Act out familiar fingerplays or nursery rhymes like: "Five Little Monkeys Jumping on the Bed," "Five Green and Speckled Frogs," "Little Miss Muffet" or "Mary Had a Little Lamb."
- Work with a small group to act out a familiar story. Read the story slowly. Let the children repeat the dialogue you read or create their own dialogue. Don't force children that do not want to say what the character has said. After several times acting it out, the dialogue will come. Help guide them as to how to move. Good stories to start with are: *Three Billy Goats Gruff*, *The Gingerbread Boy* and *Peter Rabbit*, by Beatrix Potter. Stories that have verses that repeat make this first step easier.

Poems and Chants

The value of listening to and reciting nursery rhymes, poems and chants goes beyond enjoyment. Children learn the rhythm and cadence of language. Their listening skills are heightened. Repetition puts the verses into memory.

- Clap out a poem, chant or nursery rhyme.
- Illustrate a poem, chant or nursery rhyme (scribbles are acceptable).
- Let the children see the poem or chant written out. Identify rhyming words.
- Act out a poem, chant or nursery rhyme.

Dancing

Children love to move to music. Capitalizing on this form of physical exercise when the choreography is the child's choice encourages creativity and raises self-esteem. Simple folk dances can be taught to children in pairs or in small groups. Dancing stimulates all regions in both hemispheres of the brain. The activity must meet the children's ability and interest level. Mirroring movements of a partner, swinging arms together and holding hands teaches socialization skills.

- Simplify Israeli, Russian, Mexican, Greek and other ethnic dances so that children understand the unique steps. The music and beat differs with each culture. Dance the Mexican Hat Dance or the Israeli Hora.
- Teach square dancing steps. Do-si-do, swing your partner and promenade are all steps that are easily taught. Slow down the music and directions so that the children can follow.
- Use records, drum beats and voice chants as children dance. African rhythms lend themselves easily to young children's abilities and allows them to learn about a rich cultural heritage.
- Ask a local dance studio to bring their students to perform a short program. Children can watch and learn to enjoy ballet, tap and jazz. Watch excerpts of "Swan Lake," "The Nutcracker" or "Cinderella."
- Sway scarves or ribbons as children move to music of varied tempos, thus creating their own dances.

Creative Movement

Moving creatively to either music or music coupled with words not only helps children understand the tempo of music and the beat of speech, but stimulates several parts of the brain at the same time. Children learn to move in sequence to the words or the music. It is fun as well as helps children act in conjunction with other children.

- Use tapes and records that give specific directions of movements described by the words of the song. Al Rasso, Hap Palmer and Ella Jenkins songs have easy-to-follow movement activities.
- Define varied tempos with ribbons, exercise streamers and scarves.
- Clap, wave and twirl paper plates to the beat of music or move the plates with others to teach cooperative skills as well as tempo.
- March to different rhythms.
- Move a bed sheet to music as a group. Parachute play uses large arm muscles as well as requires cooperation. Walk to the right or left as a team; hold it high or low. Shake the parachute to create waves. Try rolling a ball into the middle and from side to side while sitting or standing.

Multiple Intelligences

Not every child will excel in math or writing as an adult. Children possess other individual abilities that will help them succeed in the world. Some children learn foreign languages easily; others move with amazing agility; while others are musically gifted. Howard Gardner's (1993) theory of multiple intelligences identifies eight basic kinds of human intelligence. To truly have a curriculum that meets each child's growing need, we must gear activities to a multi-dimensional brain. Each intelligence is valuable and should be fostered by frequent exposure.

Linguistic Intelligence

Reading, writing and speaking comes easily to these children. They use words effectively. Our teaching often is slanted to this intelligence.

- Begin a story and let the children finish it. Make up a round-robin story.
- Have young children dictate stories and picture descriptions to the adult for the adult to write. Keep a journal for each child.
- Use foreign words and expressions daily (such as hello, hola, ciao). Sing foreign songs. Use ethnic names for snack foods. Explain the meaning of the words.

Logical-Mathematical Intelligence

These children have a capacity for adding, subtracting and other mathematical problems. They solve problems using logic. Again, we often teach to these strengths.

- Count blocks or toys, pennies collected for a donation and the number of squares in a picture to help children hone in on this skill.
- Help the child find the missing person in books without words. Let the child predict what will happen next in a story book before you turn the page.
- Design simple problem-solving challenges. "Can you figure out a different way to get across the room than walking?" "Guess what is in the bag?" Figure out how to reduce the number of paper towels being used per day to eliminate waste.
- Classify objects in the doll house or block area. Decide what you could buy with an amount of money.

Musical Intelligence

Music not only appeals to these children, but they have a great love for music and are able to recreate musical patterns with a rhythm.

- Expose children to all forms of music: classical music, folk music and instrumental music. Discuss musical intonation when singing beloved songs.
- Have available musical instruments such as a drum, xylophone, bells and triangle. Help children imitate songs they know and create their own tunes.
- Link art and music by having the children draw to music and describe music in "color words."
- Have children shut their eyes as they listen to music. Clap to the beat. Let children create movements to varied types of music.
- Make up tunes of simple facts, phone numbers and addresses that you want children to memorize. Music speeds up the process.

Spatial Intelligence

These children have the ability to both visualize the surroundings and know what is their own individual space. This ability enables the child to recreate space through art and design.

- Plan a treasure hunt for the afternoon snack. Have children draw maps of the path taken. Follow simple maps to the playground. Marking paths as you hike heightens this ability.
- Play games such as throwing a ball at a target or hoop. Simplify hop scotch for the age of the child. Try walking through an obstacle course.
- Give children choices from a wide variety of art activities using differing media every day.

Bodily-Kinesthetic Intelligence

These children use their bodies to express ideas and feelings. They are extremely coordinated in sports and dance. They use their hands to create as well as use tools well.

- Provide supervised use of screwdrivers and hammers, first with styrofoam and golf tees and later with screws and nails in wood.
- Teach simple dances. Have tumbling mats for somersaults and body rolls. Do gymnastics and acrobatics on rainy days. Creative movement exercises should abound.
- Have a fitness trail on the playground.
- Bounce or roll balls back and forth between two children. Throw bean bags or paper wads.
- Challenge children to use their bodies to form letters or numbers.

Interpersonal Intelligence

This is the ability to understand the feelings and moods of others. These children get along well with others. Each child needs these skills for socialization.

- Use games and activities that identify body language and facial expressions.
- Teach creative movement activities and dances so children learn to value others' space.
- Provide cooperative activities where children share a job, depending on each other for completion. Carry a heavy jug of water or paint a picture together. One child washes the table while the other dries. Working hard puzzles or designing a block structure as a group teaches this ability.

Intrapersonal Intelligence

Develop an understanding of yourself and the wisdom to change behavior to adapt to the surroundings. Verbalizing feelings, understanding abilities and exhibiting self-control and self-esteem are attributes of these children.

- Listen to poetry and music and tell how they make you feel.
- Teach problem-solving skills. " What could you say to Jimmy to let him know you didn't mean to knock down his blocks?"
- Play follow the leader. Say chants with each child acting as the "teacher." Take turns leading songs. Play "Simon Says."
- Act out problems and conflict situations. Stop before the problem is solved. Help children reach conclusions.

Naturalistic Intelligence

These children exhibit an appreciation and love of the environment. They have an ability to nourish and use nature for everyone's pleasure.

- Put plants, fish or small pets into the environment for the children to care for daily.
- Help children tend plants in a garden inside or outside.
- Match leaves from different plants; use leaves, sticks and flower petals for nature collages. Exhibit a daily "natural wonder" to explore in the science area.
- Take a variety of walks with different themes. Focus on one element as you take a plant walk, an insect walk, a listening walk or a color walk.

Block Area

The block area has lots of appeal. Children can play day after day, year after year in the block area and never tire of the activity. It is im-portant to know that brain growth is taking place each time a child builds with blocks. The more time spent, the more complicated the product. More thinking and learning is taking place and brain pathways are strengthened. Each creation differs and creates new problems to be solved.

The toddler begins by trying to stack blocks. Through trial and error the child learns that the blocks must be stacked carefully with the weight equally balanced upon the one underneath. In time a tower is built. As the child continues to build it higher, gravity is a foe. The base must be broadened in order to build higher. Memory is developed. No adult can convey this scientific principle; the child must have the hands-on experience of building the tower and watching it fall and rebuilding the tower. Each time, brain connections are reinforced. It might be an accident the first time that the foundation is wider than the top when the child finally achieves success. There is a need to repeat building the structure until the knowledge of how to balance the weight of the blocks in order to gain height is understood.

Block Area

A large, unencumbered area is needed with definite boundaries, combined with or near the transportation and pretend area. The dress-up corner should be nearby, so that play can spill over from one area to the next. Children can then build roads and put cars on them to expand play. After building a house, children can don fire hats and pretend to put out the fire.

How Often Block Area Open

Twice daily for at least 30 minutes. Best practice: available most of the day.

Supplies in the Block Area

Infants and Toddlers

- Large cardboard blocks.
- Foam blocks.
- Large plastic blocks.
- Smaller colored wooden blocks (too large for mouth).
- Large cars and trucks.
- Items such as cardboard boxes, paper towel tubes, chairs and benches, large pieces of material can be added on a "once in a while" basis to spark creativity and change the pattern of building and thinking.

Ages 2-5

(In addition to supplies listed for infants and toddlers.)

- Unit Blocks – Each child needs a minimum of 25 for play.
- Small wooden or plastic people, animals and street signs.
- Large and small cars; a variety of trucks; a train set.
- Paper, masking tape and markers or crayons for signs.
- Other block sets for variety including:
  - Small colored blocks.
  - Huge cardboard blocks.
  - Popular block sets on the market.
  - Lego® and snap blocks.

Learning That Takes Place in Block Area

Emotional Skills

- Feel successful.
- Experience enjoyment.
- Feel excited or disappointed.
- Learn to delay gratification until building is completed.
- Increase ability to focus.

Physical Skills

- Use eye/hand coordination.
- Practice motor skills.
- Acquire balance.

Social Skills

- Learn to sit next to others.
- Learn to share.
- Acquire communication skills.
- Try out leadership skills.
- Practice team building skills.

Intellectual Skills

- Learn mathematical skills.
  - Understand whole/part.
  - Identify shapes.
  - Explore quantity: numbers, more, less
  - Experience length, measurement and weight.
- Develop language.
  - Acquire vocabulary: over, under, symmetry, height.
  - Gather information from signs.
  - Use words to communicate needs to others.
- Sequence: Plan a project and complete it.
- Increase attention span.
- Learn scientific principles such as gravity, leverage and balance.
- Develop creativity.

Adult's Role in the Block Area

Facilitate Learning - Act as a catalyst to increase thought processes taking place. Comments are given occasionally. The child is allowed to build using their own ideas. Adults can help children problem solve or make suggestions to lead children to think through problems.

Stimulate thinking skills - Ask open-ended questions such as, "Tell me about your building." "Explain how a person could get into your house." "How were you able to make this so tall?"

Ask mathematical questions - "Which part of the building used the most blocks?" "Whose building is the largest, yours or Justin's?" "Let's see how many triangular blocks you used to create that doorway. Help me count."

Help children develop hypotheses - "What would happen if we removed this block?" "Can you imagine which shaped block would fit on top of that tower?" "How many shapes could be made from these two blocks?"

Increase self-esteem - "Wow, what a good idea!" "That is a clever way you thought to make a farm!" "I bet you are really proud of this house!"

Validate creation of social skills - " I like the way you girls are cooperating on building this structure." "The three of you have worked well together." "Jerry, what a nice job you did helping Suzi build the wall."

Reinforce language skills - "You made a symmetrical building. Look, this side and this side used the same number of blocks." "This tower is very tall. Lisa's is short." "I'll help you write a warning that the driveway is steep. What do you want the sign to say?"

Information About Brain Function During Block Play

When a child is involved in playing with blocks, the entire brain is activated while connections are being made in many parts of the brain simultaneously. Both hemispheres of the brain are aroused. Repetition of both large and small motor movements brings about permanence in the brain connections. Thinking is at a high level and creates new pathways. As the child's activity changes from one aspect of play to another, different regions of the brain are being stimulated.

Pretend Play Area

Providing an area that fosters creativity stimulates children's imaginations. The pretend area, whether called Dramatic Play Area, Housekeeping or Family Living, has props from real life and allows children to act out their world. Whether in a home or a classroom setting, there is a small reproduction of a kitchen, bedroom, or laundry including dolls and dress-up clothes.

Children find a great deal of comfort in playing with familiar objects. Infants and toddlers are drawn to eating implements. They quickly learn to "pretend" to eat. As they grow older, small children enjoy recreating scenes in their daily lives such as eating and sleeping. They are fascinated with babies and enjoy playing with dolls and caring for them in much the way they are cared for by their parents. They want to wear the clothes they see adults wearing.

In reality, children have very little control over their lives. A routine is established and they are made to conform. When the family decides to go out of the house, the child is taken. Meals are served. Children are put to bed. In the pretend area, they suddenly have power, which is personally satisfying. They can practice not only the daily routine, as they would like to have it, but can recreate difficult situations and learn coping skills. Playing doctor before or after an illness helps allay fears. Pretending to be daddy leaving for work and returning strengthens the feeling of trust that an adult will reappear. Reprimanding a doll or taking care of an infant is gratifying. The area becomes an outlet for emotions. Children can gain a feeling of mastering their environment.

This is one area where children must be allowed to create and direct their own play. Adults can stand back and observe or extend play with suggestions. It is important not to dominate the play. If you choose to be involved in the tea party or as a household member to model how to play, be sure to let children's ideas move the plot forward. When teachers tell children everything to do, creativity disappears.

Socialization is a natural outgrowth of play in the pretend area. Children are actually practicing the skills they will need to negotiate with other people in life. They recreate their lives and try out family dynamics. Children learn to be nurturers when they take care of dolls or feed the children. They practice daily living tasks that will be important for their future independence. Arguing and learning to cooperate in the pretend area is a rehearsal for getting along with others in the outside world. The difference is that creative play is comfortable, somewhat predictable and children have the help of adults to manage.

Imaginative play situations in the pretend area require very complicated thought processes and is very enriching. The thinking that is necessary to create the play is at a much higher level than many activities such as working puzzles or arranging dominoes. Many people think playing dress-up and cooking pretend food is not a learning time. Conversely, more knowledge is acquired in a shorter span of time than in some so-called "learning" activities. Children must think, problem solve, manipulate objects and interact with others in a short span of time, creating a rich environment for brain growth. The complexity of the play varies by the richness of the area. Try to ensure that there are enough supplies to support the play.

How Often Pretend Play Area Open

Twice daily for at least 30 minutes. Best practice: available most of the day.

Supplies in the Pretend Play Area

Infants' and toddlers' furniture should be smaller so they can easily sit and play. Be sure all support props are too big to swallow. There is little difference in equipment for older children.

- Include small furniture such as table and chairs, toy refrigerator, stove and sink, washing machine, iron, ironing board and a cabinet to hold supplies.
- Have child-sized plastic dishes, tableware, tablecloth, baskets, pots and pans.
- Provide dolls of varying sizes, shades of skin color and ethnic backgrounds, doll bed, stroller, doll clothes and baby blankets.
- Include male and female dress-up clothes that are easy for children to handle. Instead of adult clothes, go to thrift stores and buy children's sport coats, ties, fancy dresses, vests and hats. Include a variety of shoes, tap and ballet shoes, boots and slippers.
- Have real or silk flowers of all colors.
- Hang colorful posters of families and household chores.
- Have brooms, mops and other pretend cleaning supplies. Use empty boxes and bottles of non-toxic cleaning products.
- Supply plastic fruits, vegetables and replicas of prepared foods.
- Place out toy telephones with paper, pencils and boxes of index cards with the children's phone numbers.
- Add pretend area prop boxes with items to change the area into barber and beauty shop, restaurant, office, laundry or bakery.

Learning That Takes Place in the Pretend Play Area

Emotional Skills

- Feel success.
- Experience satisfaction in acting out family roles.
- Learn to understand and appreciate family dynamics.
- Experience independence.
- Increase ability to focus.
- Build self-esteem.
- Master environment.
- Act out feelings in an acceptable way.

Social Skills

- Learn to work together toward a common goal.
- Learn to share materials.
- Acquire communication skills.
- Practice teamwork to create family atmosphere.
- Help one another.

Physical Skills

- Use eye/hand coordination.
- Learn motor skills.
- Grasp and release objects.
- Balance as the child learns to stand on one foot to put on pants and shoes.

Intellectual Skills

- Learn mathematical skills.
  - Understand whole/part.
  - Explore quantity: numbers, more, less, bigger, smaller.
  - Understand numerals.
  - Practice matching.
  - Weigh and measure.
- Develop language.
  - Acquire vocabulary: front, back, before, after.
  - Understand language to organize family and create surroundings.
  - Make up a story as the plot is acted out.
  - Use words to communicate needs to others.
- Sequence: plan activities.
- Use time concepts: morning, tomorrow, later, after.
- Increase attention span.
- Develop creativity.

Adult's Role in the Pretend Play Area

Stimulate thinking skills: Ask open-ended questions such as, "What kind of work do you do, daddy?" "How are you going to fix the eggs?" "Why do you think your baby is crying?"

Ask mathematical questions: "How many plates will you need to feed your children?" "How much do these shoes cost?" "Can you find six hats for all the babies?"

Help children develop hypotheses: "What would happen if we put your pancakes in the oven?" "If you put the ice cream in the refrigerator, would it stay frozen?" "How can we make room for two more children?"

Increase self-esteem: "You are taking good care of your baby. You wrapped your baby in a warm blanket." "What a wonderful dad you are! You read a book to your children." "What a delicious meal you cooked!"

Validate creation of social skills: "I like how you helped Jeremy put on his tie." " Wow, you let Mindy have a turn with the high-heeled shoes!" " What a nice gesture to let Sarah sit at the table."

Reinforce language skills: "You are wearing the ballet slippers." "Does your restaurant have any specials tonight?" "Are you the appliance repair man? Our stove is broken."

Information About Brain Function During Pretend Play

The pretend area engages every part of the brain in a very intricate way. Children are not only using the senses to interact in the area, they often make contact with other children. As they play, language and movement causes the different regions of the brain to be active. Thinking, planning and executing thoughts make for a rich growth of brain connections. Emotions play a large role in this area as children recreate feelings as well as situations. Here they are in control and their brains emit chemicals that help them practice how to cope in difficult situations. Stimulation across both hemispheres occurs as children put on clothes and pretend to cook. Much of the wiring relates to pre-reading skills.

Art Area

The art area is appealing to many children because of its messiness, its relaxed atmosphere and its variety of activities. A good art area allows a child to be independent and experience a diversity of action. The activities allow for choice and are open-ended so each project is truly the child's creation. Children can dabble in the art area daily and never tire of the task. Learning is taking place each time the child approaches the same activity. In the beginning, art is purely kinesthetic. After children begin to master the physical ability of using a brush, glue, marker or scissors, they move on to master color, arrangement and patterns. Each time they repeat an activity, children approach mastery. They are establishing pathways in many parts of the brain. They use the knowledge gained in the previous task, propelling themselves into the next level, creating new connections. Only if these connections are reinforced through repetition, will they approach permanence.

All children go through the same stages of art development whether using paint, crayons or clay. The first stage is a disordered scribble. Children enjoy feeling their muscles move as they try to make a mark on the paper. As in any stage of development, each child has an individual timetable. This random coloring then moves into purposeful movements as the child begins to control the crayon or paint brush. The child picks up the implement, changes colors, even attempts to join lines. Once this stage is mastered, the child begins to make shapes (whether accidental or purposeful) and begins to name his scribble. Often children in preschool and kindergarten do not leave this stage. Others move on to draw representational objects that adults can recognize such as faces, people and houses.

Art supplies should be at eye level and accessible to children without an adult "doling out." There needs to be enough area on tables covered with a protective covering (newspaper), so that children can create without worrying about going off the

paper. Children should be allowed to stay in the art area and repeat activities (several collages or three easel paintings) when their interest dictates. Caution should be used in teacher-provided projects such as pre-cut patterns to glue or ditto sheet objects to color or cut. The adult has done the thinking, depriving the child of the full benefits to their brains. Not only is the activity lacking comprehension and skill formation, but creativity is doused.

How Often Art Area Open

Twice daily for at least 30 minutes. Best practice: available most of the day.

Supplies in the Art Area

Infants and Toddlers

- Supply large nontoxic markers, crayons and large pieces of paper.
- Have nontoxic play dough.
- Provide a low easel with washable paint in nondrip dispensers with large brush.
- Add safety scissors with thin strips of stiff paper for easy success (toddlers only). Tearing paper is always acceptable.

Ages 2-5

- Provide smocks.
- Set up an easel with newsprint and several colors of paint in nondrip dispensers. Paint colors should vary often. Several sizes of brushes accommodate each child's preference.
- Put large and small pencils, crayons and washable markers in containers so that children can use the colors and size that suits their needs.
- Include stamps, ink pads and Bingo daubers.
- Add finger paint, colored glue or shaving cream.

More supplies for ages 2-5

- Keep a variety of paper available: colored construction paper in several sizes, newsprint, old computer and office paper, fax paper rolls, wallpaper books, paper plates and foam trays.
- Glue or paste. Use paste sticks to spread. Provide small glue bottles to squeeze.
- Supply play dough with rolling pins, cookie cutters and craft sticks for cutting. Clay is a different experience and can be made available also.
- Bring in items such as cardboard boxes, toilet and paper towel tubes, large material scraps, recyclable items, sequins, leaves, colored rice and noodles to spark creativity.
- Place out a variety of cardboard, paper plates and styrofoam trays to vary the background.
- Use safety scissors with paper scraps, coupons, wallpaper books and greeting cards. Supply envelopes to put cut scraps inside to take home.
- Supervise children using masking and scotch tape or a stapler.
- Choose any imaginable item that can be glued, colored or cut.

Learning That Takes Place in the Art Area

Emotional Skills

- Feel successful.
- Experience joy and excitement.
- Discover through trial and error; learn to take risks.
- Learn to delay gratification until painting or project is completed.
- Increased the ability to focus.

Social Skills

- Master sitting next to others.
- Learn to share and pass supplies.
- Acquire communication skills.
- Learn to help others.
- Work as a team.

Physical Skills

- Use eye/hand coordination.
- Learn motor skills. Practice muscle control of arms, hands and fingers.
- Grasp and release objects.

Intellectual Skills

- Decide which direction the brush will go.
- Practice decision making skills.
- Judge colors to use. Decide when and where on the page.
- Attempt to create by filling a space; use imagination.
- Learn mathematical skills.
  - Learn whole/part.
  - Understanding how colors can change as they are mixed.
  - Identify shapes.
  - Repeat patterns.
- Develop language.
  - Acquire vocabulary: paint, marker, material, collage.
  - Name pictures or create a story around the drawing. Adults can write the dictation on paper.
  - Use words to communicate needs to others.
- Sequence: plan and complete a picture.
- Increase attention span.
- Develop creativity.
- Exercise choices.

Adult's Role in the Art Area

Facilitate Learning - Stimulate creativity by supplying a rich variety of materials. Validate attempts to create things. Comments are given with descriptive words. The child is allowed to paint, draw or glue using his own ideas. Adults can help children problem solve or make suggestions of additional steps.

Stimulate thinking skills - Use open-ended statements such as, "Tell me about your drawing." "Explain why that area is green." Ask, "How did you make those stripes?"

Ask mathematical questions - "How did you make this unusual color?" "What two shapes did you use to make that design?" "Let's count how many pieces of material you pasted on the paper plate."

Help children develop hypotheses - "If you added blue to the red, what color would you get?" "How many noodles would you need to create another design just like that one?" "Whose picture do you think will dry first, yours or Addie's?"

Increase self-esteem - "Wow! What a good idea to glue the sequin on top of the material!" "I like the way you put the purple in the corner of the paper." "Your circle is very round." "This paper is completely covered with paint. You worked very hard."

Validate creation of social skills - " I like the way you girls are sharing the glue." "I am so glad to see you gave Gracie the yellow marker when you were finished with it." "You girls cooperated and found a way to keep paint off the wall."

Reinforce language skills - "You made a new color from the yellow and blue. It is green." "Can you tell me a story about your drawing? I'll write the words." "Ask Angela to please pass you the scissors."

Information About Brain Function During Art

The art area engages many senses, causing activity throughout the brain including both hemispheres. By using every part of the brain at the same time, the tasks being performed become highly significant. Repetition of motor movements brings about permanence in the wiring. Decisions are made rapidly using thinking and problem-solving modes that foster the formation of connections. Creativity is at a higher level of brain function. Art evokes emotions that promote the release of hormones, sparking feelings of well-being and contentment.

Discovery and Science Investigation

Each day it is the caregiver's responsibility to create an environment that helps children raise questions and curiosity about their world. The discovery area helps children to make hypotheses about their surrounding world and understand changes found in nature. They learn scientific principles such as change from heat, time, gravity and growth. Children need to observe and have direct contact with the materials to expand their knowledge.

Any place can be used as a discovery area: a windowsill, small tables or a corner of a room. Inside and out the children are always learning about the world. Cooking, planting a garden, caring for animals and observing changes in nature create exciting discovery moments.

Science Investigation Activities

Simple science activities that children can conduct by themselves inspire future scientific exploration.

- **Clean Pennies** - Cover the bottom of a shallow pan with vinegar. Provide a bowl of salt. Let the child take pennies and dip them in vinegar one at a time and rub with salt. When finished, wash the shiny pennies well in soapy water.
- **Blow Up a Balloon** - Give each child a small bottle, balloon, teaspoon, child-sized pitcher, vinegar and box of baking soda. Have the child pour a small amount of vinegar into the bottle. Place a spoonful of baking soda in the balloon as an adult or another child stretches open the top of the balloon. Place the balloon neck over the bottle neck. Pull up the balloon so that the baking soda falls into the bottle. The gas escaping from the fizzing mixture blows up the balloon. Be careful removing the balloon from the bottle.
- **Create a Volcano** - Use a paper cone to create and decorate a volcano leaving a hole at the top. (For a class project, make it out of paper maché.) Place a cup directly under the opening at the top. The cup should reach the apex of the cone. Pour in vinegar and add baking soda. The frothy foam will rise and run down the volcano.
- **Different States of Water** - Let children mix food coloring into water. Pour into an ice tray using child-sized pitchers. Place a popsicle stick in each. Freeze. Use the cubes as paint. As the cube melts, color will be left on the paper. Observe water changing from liquid to solid to liquid.

How often Discovery Area Open

Always in the environment. There is no special time.

Supplies in the Discovery Area

There is no limit to what can be in here. Look around.

Infants and Toddlers

- Include nontoxic plants of all sizes throughout the room.
- Use a stroller or wagon to take children on walks.
- Observe a fish tank or small animals. Make sure little hands cannot get in!
- Bring in fragrant flowers of all colors.
- Hang colorful posters of sky, nature, animals and oceans.
- Equip water and sand table with pouring and measuring cups.
- Bring in fruits and vegetables to see, feel and smell. Older children can taste.
- Look at large rocks and shells.
- Supply nature books.

Ages 2-5

(In addition to supplies listed for infants and toddlers.)

- Provide potting soil, seeds, cups and sponges.
- Read books on all areas of nature and science.

More supplies for ages 2-5

- Assemble materials to conduct simple scientific experiments.
- Bring caterpillars, tadpoles, frogs, slugs, worms and bugs into the room for observation.
- Collect a variety of leaves and sticks to sort.
- Observe a variety of objects using a magnifying glass.
- Experiment with magnets and a variety of objects that are metal, plastic or wood.
- Weigh and measure children. Use a scale to weigh toys.
- Track scientific discoveries on chart paper. Record observations with markers and crayons.
- Display rocks, shells, leaves, bugs and nests.
- Create category shelves. Put out a turtle shell, a nut shell and a sea shell. Classify objects on shelves.
- Observe celery stalks, sweet potatoes, broccoli, radishes, onions and cauliflower placed in water to sprout roots.

Learning That Takes Place in the Discovery Area

Emotional Skills

- Feel successful.
- Enjoy learning new facts.
- Experience excitement or disappointment.
- Learn to delay gratification as food cooks or plants grow.
- Increased ability to focus.
- Learn that nature often follows a pattern.

Social Skills

- Learn to work together toward a common goal.
- Learn to share materials.
- Practice communication skills as children talk about scientific principles.
- Use teamwork to complete experiments and care for animals and plants.

Physical Skills

- Use eye/hand coordination.
- Learn motor skills.
- Practice grasping and releasing objects.
- Learn to focus eyes while looking in a microscope or magnifying glass.

Intellectual Skills

- Learn mathematical skills.
  - Understand whole/part.
  - Explore quantity: numbers, more, less, bigger, smaller.
  - Identify shapes.
  - Experiment with measurement and weight.
- Use sequencing.
- Develop language.
  - Acquire vocabulary: grow, die, evaporate, magnify, mold, crystal.
  - Understand language that describes change through heat, growth and time.
  - Use words to communicate observations to others.
- Observe scientific principles.
  - Watch living organisms grow.
  - Learn the steps in a scientific experiment.
  - Try observational techniques.
  - Observe principles such as gravity and growth.
  - Discover object permanence.
- Understand passage of time.
- Increase attention span.

Adult's Role in the Discovery Area

Facilitate Learning - Act as a catalyst to increase thought processes taking place. Arrange environment so children can make sense of changes they observe. Help the children build educated guesses and predict outcomes. Children are allowed to use their own ideas. Adults can help guide children in finding resources to answer questions and make suggestions for outcomes.

Stimulate thinking skills - Ask open-ended questions such as, "What caused the plant to die?" "How do you think the hamster got to the top of the cage?" "Why did the big wooden block float and the little penny sink?"

Ask mathematical questions - "How many fish are in the tank?" "What shape is the egg?" "Who can find three things that float?"

Help children develop hypotheses - "What would happen if we put the plant in the closet?" "How can we keep the rabbits out of the garden?" "Why do you think one fish died and the other fish didn't?"

Increase self-esteem - "You really dug a deep hole for the plant. You are strong!" "What a good job you did cleaning the cage." "You poured the water carefully and didn't spill a drop."

Validate creation of social skills - "I like the way you helped each other feed the mice." "You cooperated by sharing the magnet." " You and Millie look the same size. Why don't you measure each other?"

Reinforce language skills - "Look into the microscope at the crystal." "What do you think caused the water to evaporate?" "The algae in the water makes it look murky."

Information About Brain Function During Discovery

The discovery area stimulates all the senses, bombarding the brain with images, sounds, smells, textures and even tastes. The complexity of the operations allows all parts of the brain to be working simultaneously. The cognitive area is especially active as connections are made to areas of the brain that control speech, language, movement and sight. Thought processes are strengthened as children try to problem solve or generate and try hypotheses. The thrill of discovery leads to hormone releases that bring about feelings of self-esteem and self-worth.

Lessons to be Learned

Lessons to be Learned from Brain Research

We can compare brain development with the cycle of the bamboo plant. Underground rhizomes or thickened plant stems establish a complicated root system. Only after years of development do the first stems sprout above the ground. In a similar way, the brain develops a sophisticated system of connections between neurons. This proliferation of synapses allows messages to be sent to all parts of the brain from input garnered by the senses. Since we know that the early years are the important ones, we must be diligent not to let misinformation confuse what we are doing.

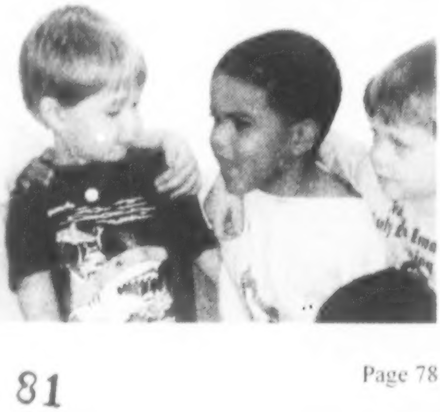
Misinterpreting the Data

Remember that the scientific information about the brain changes rapidly. What is newly discovered today may be obsolete with new discoveries tomorrow. Five years ago we were told we are born with 100 million brain cells and would never manufacture more. There is growing evidence that brain cells are created under certain circumstances. Pregnant women, for example, do grow new cells.

Some of the original reports were erroneous. They equated all brain cells and neurons. We now know that glial cells make up 90% of the mass. Neurobiologists have recently begun to understand glial cells' role in growth and development of the brain. The cells' task could be compared to the jobs of a worker ant. Glial cells feed and protect the neurons. They block harmful chemicals and remove waste products. They ensure that nutrients reach the neurons.

Developmentally Appropriate Activities

It is important that early care providers make sure everything is appropriate to the child's age and stage of development. Bombarding young children with flash cards or pushing down academics because young brains are developing quickly is an inappropriate use of the research. Young children can mimic and learn almost anything when enough time is devoted to teaching it. Yet, it is quickly forgotten without daily repetition, especially if meaning is not connected to the learned skill. In essence, it is a waste of time. We



must be diligent not to pressure young children to learn or force them ahead. Children need to learn through the interaction of their senses with materials during play. Learning for the "moment" will in the end be useless or even harmful.

Reports of research in laboratories showing formal music and math lessons increasing a young child's ability could lead to harmful practices. The activities must be at the child's level. Many young children are not ready for "formal lessons" and the lessons may generate anxiety, stress and fear. This leads to problems that will hamper all learning. Singing age-appropriate songs, having enjoyable musical experiences geared to their age level and receiving positive reinforcement for experimentation with musical instruments are more valuable.

Children's brains are most open to hearing and learning foreign words before the age of ten. Foreign languages can be taught early, yet should not be done in the same way elementary students are taught. Learning ethnic words that have relevance to their lives will be remembered. Songs and activities that promote using multiple languages are fun and exiting to young children. When words, music and movement are linked in creative movement activities, many parts of the brain are stimulated at the same time, increasing memory capacity.

Children do not learn easily from being drilled in a skill. However, children love repetition. They request the same book and the same song over and over. They enjoy hearing familiar words. Through repetition they master not only the plot, but also the sequence and much of the vocabulary. Thus, predictable books that repeat a section over and over not only are fun to read, but reinforce brain connections. The use of chants and nursery rhymes is advantageous. Rhythm and cadence help create memories of speech patterns.

Educational Delivery Systems

We may need to look at our educational delivery system. Most early care and education settings move children from class to class by age. The children have a new teacher every year. Since nurturing and bonding play such an enormous role in early social and emotional development, it may be that children need the same caregiver all through the early years. We definitely know that young children who are in care for a long day need the continuity of the same caregiver. When the staff changes throughout the day, the child is put at a disadvantage.

Ratios and group size affect brain development. In infant and toddler care, too many children per adult results in only physical needs being met. An adult with eleven two-year-old children cannot possibly give sufficient individual attention needed for children to reach their full potential. There is no way they can change diapers, wipe noses, see to the safety of each child and give the on-going language description and sensory input necessary to these young minds. Large group sizes create noise that is detrimental. Young babies and children learn to ignore environmental noises to prevent overload; shutting out the stimulation they need at the time. Brain development may actually be different for children who experience constant noise.

Classroom Atmosphere

Noise is a result of class size, lack of soft elements such as carpeting and pillows and room arrangement. Keeping the noise level down is especially important for infant and toddler environments. High noise levels affect sensory input and actually may rewire the brain. Older children, working in small groups or individually, make a certain amount of sound, but with good teaching it is acceptable. Low background music for short periods of time helps modulate the noise level.

Yelling in the classroom is quite harmful. It stimulates chemicals in the brain that causes the reptilian brain or midbrain to grow disproportionately to the rest of the brain. The stress is similar to what abused children are subjected to when threatened. When children are under stress they can't learn (Routh 1997). Giving children choices and using transition techniques help to keep children from misbehaving and thus eliminates the need to yell. Children need a loving, nurturing atmosphere.

Problems Affecting Children

Separation Problems

The child who cries daily when left in the care of others, has an emotional need that must be met. Children have to feel loved, secure and safe or else chemicals that block learning are released in the brain. Some children learn to stop the tears because of threat of punishment or promise of a treat, but emotionally are just as upset. Caregivers must take the time to rock, comfort and speak to the child until the feelings of inadequacy go away. If the problem is prolonged, the damage to a child can show up later in life with inappropriate reactions to relationships. Try not to let separation problems go on too long without seeking a remedy. Usually having the parent spend time in the setting with the child helps the child get over experiencing fears. Other children need a smaller setting or are just not ready to be in a group situation.

Behavior Problems

There may be children in the classroom who are out of control. Their behavior has an effect on the wiring in their brains as well as delays in their social and emotional development. Whatever the cause of the aggression in a child or bully, caregivers must assess how the behavior affects others in the room. An aggressive child or bully often has a "victim." The "victim child" can be compared to an abused child who fears the attacker. The level of vigilance the victim child must keep prevents learning. The sight and sound of the aggressor causes chemicals to be released in the brain that helps the child cope with life threatening feelings. The child reacts by "fight or flight." When this is repeated over a period of time, the brain growth becomes abnormal (Karr-Morse & Wiley 1997).

The child, meanwhile, who is aggressive or threatening others, is also experiencing abnormal brain formation. The longer the behavior goes on, the more entrenched brain connections become as they are reinforced. The "wiring" goes awry and impulse control and violence become the norm. Intervention that is ineffective in stopping the behavior often results in emotional deprivation leading to low self-esteem. However, with early intervention, using effective age appropriate guidance, conflict resolution and discipline techniques, this cycle can be stopped. Don't hesitate to seek outside expert help.

Developmental Delays

One of the most important messages of the brain research is that we can't wait and see what will happen. When a child exhibits abnormal development, time is too important to delay. We know that early intervention is better for children at risk. If they are not receiving stimuli or not correctly processing those stimuli, delays will increase. A child who exhibits a three-month delay and has good intervention could still have a three-month lag at the end of the year. The same child with no intervention could have as much as a fifteen-month lag at the end of the year. Seeking professionals in the community that provide evaluations can help define what the child needs from both parents and caregivers. When a child has one risk factor, timely intervention may result in a child who shows no differences as an adult. Yet, when a child has two or more risk factors, the chance for long-term problems multiplies. Every day counts (Sprinthall & Sprinthall 1981).

Talking with Parents

Parents rely on early care and education professionals for much of their information on child development. Every parent wants the best for their child. As the parents of normally developing children learn about recent brain research, they often have a strange reaction. Many feel guilty that they didn't know about the "windows of opportunity" and have been doing "it" wrong. Some are even afraid that they have caused additional problems. We must treat these feelings gently as we make recommendations for the future. Stories read, time spent playing with children, weekly visits to the store or grocery, are learning experiences that help the brain develop. A good diet and healthy environment make a difference. Parents are eager to learn about children's needs. Once parents understand that children need many experiences and activities that appeal to the senses, they will create a stimulating environment.

Parents of children with disabilities not only feel guilt, but often experience a feeling of hopelessness that the delays are irreversible. Their fears must be handled gently as we make recommendations for evaluation. It is important that caregivers have knowledge and skills in how to tell the truth, yet help parents retain hope. Don't hesitate to consult community services for help. The best part is that we now have more knowledge to help children with developmental delays or physical and learning problems. No matter what the problem is, we can't give up! We must still look for ways to help children. Remarkable things can happen.

We know that the brain is very plastic at a young age. Often one part of the brain takes over for an injured part. New neural pathways can be created by appropriate experiences. Cocaine babies respond to nurturing; some neglected children thrive after massive environmental intervention. Remember, our society doesn't give up on stroke victims in their eighties. Young children might need different techniques and more attention, but there are many positives in their future.

Early care and education providers have the perfect opportunity to warn parents of the harm of smoking and alcohol on the developing child's brain during pregnancy.

Reminders of the danger of shaking an infant and information on secondhand smoke can help your future students grow successfully. Supply helmets as children ride tricycles and encourage their use at home. Teach seat belt safety to both children and families.

Low fat foods and diet foods that adults use to control weight and cholesterol are often given to young children. A child's brain is twice as active as an adult brain. It consumes half of all the calories a child ingests. Children need both fat and natural sugar in their diet to sustain brain growth. Fruits, vegetables, whole grains and protein are essential. Junk food should be kept at a minimum. Healthy snacks, plenty of water and a balance of foods is necessary for growing children.

Use the Brain Research

The most important lesson to be learned from the neurobiology is that adults need to provide a stimulating, enriched environment every day if children are to reach their full potential. Each day the senses must be engaged in a way that motivates young children to learn. Each day should present excitement and challenges. When a child is nurtured and loved, when social skills are encouraged, learning new skills will be easier for the child.

This book was written to be a reference book of activities to enrich environments for young children. Parents, teachers, family members and caregivers might choose to add one idea a week to enhance the child's surroundings. Mark those activities that the child enjoyed so they can be repeated often. Children like repetition. Engaging in the same task many times puts the skills involved into permanent memory. Each time the child approaches the same activity, there is a familiarity, but also a challenge. A different day provides a new prospective to the task. The learning builds as the child masters certain skills and finds new and creative ways to participate again.

Look at each activity's appropriateness for the age and stage of development of the individual child. Does it stimulate at least one of the child's senses? Does it address the child's emotional and social stage? Are you providing a balance of activities from each section of this book? Make this book work for you on an ongoing basis. Then its creation will have been a success!

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Meet the Author

Suzanne Gellens has a Bachelor's Degree in Elementary Education from the University of Missouri at Kansas City and a Master's Degree in Speech and Hearing from the University of Kansas, Lawrence, Kansas. She taught children with hearing disabilities for ten years. She taught normally developing children for 25 years, specializing in working with children two to six years of age. In 1979, she opened Temple Emanu-El Early Learning Center in Sarasota, Florida, and remained the director until 1996. During those 17 years, the child care center became accredited by the National Association for the Education of Young Children and grew to 97 children with both a kindergarten and first grade. In 1996, Suzanne became the Executive Director of the Early Childhood Association of Florida, a nonprofit organization serving over 4,000 early care and education providers throughout the state of Florida.

Suzanne has an extensive background of volunteering. She is Past President of the Sarasota Association on Children Under Six, Past President of the Early Childhood Association of Florida and Past President of the Southern Early Childhood Association. She has served on numerous committees and task forces focusing on early childhood services. Currently she is the chair of the Sarasota County Child Care Apprenticeship Committee and co-chair of the Early Childhood Network of Sarasota County. She serves on the Executive Committee of the State Coordinating Council for School Readiness. Suzanne conducts workshops and has published articles on cooperative play, school and classroom management, learning center activities and brain research. Suzanne is an Active Parenting™ Instructor and is a trainer for the Florida Starting Points Initiative, which is based on the research of the Carnegie Corporation of New York.

Suzanne resides in Sarasota, Florida with her husband, Paul. They have two daughters, Stephanie and Lisabeth, and three grandchildren, Solon, Addison and Tanner.

This book has 350 classroom-tested activities to use with children to create an environment that will stimulate young children's brains. Families, classroom teachers, family child care home providers or anyone who spends time with children will find these ideas useful.

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